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THE OPHTHALMIC RECORD

A Monthly Review of the Progress
of Ophthalmology.

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JANUARY TO DECEMBER, 1903.



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THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XII. No. 1. CHICAGO, JANUARY, 1903. NEW SERIES.

ORIGINAL ARTICLES.

MUSCLE STUDY IN THE LIGHT OF NEURICITY, TONICITY, AND CONTRACTILITY.

BY G. C. SAVAGE, M. D.,
NASHVILLE, TENN.

In the accurate study of the ocular muscles there are three things that must be kept constantly in mind. The first is *neuricity*, the second is *tonicity*, and the third is *contractility*. Neuricity is a word that has been coined by Dr. G. W. Drake, of Hollins Institute, Va., and a better coinage has not been made. By it is meant that influence, not yet well understood, which travels along nerve fibres, either from a center to the periphery, or from a nerve ending to the center. In the one instance it is an efferent current and in the other it is an afferent current. The one is a nervous impulse sent out from the brain or cord; the other is a nervous sensation that is sent to the brain or cord. Neuricity must be generated and stored; and, to become manifest, it must be liberated and conducted. It is not the present purpose of the writer to study the question How or where is it generated? or How is it stored, liberated and conducted? It sufficiently resembles electricity in all these respects to more than justify the name *neuricity*. The present purpose is to study the efferent current that controls the muscles of the eye.

Tonicity is an apt term and signifies the restful state of a muscle, or a muscle under the minimum of nerve influence—neuricity. In any pair of muscles, the tonicity of one may be represented by *a* and the tonicity of the other by *b*; and the neuricity causing involuntary contractility of any muscle may be represented by *x*.

When the head is in the primary position and the eyes are so set that the two visual axes lie in the extended horizontal plane, and are

practically parallel with the extended median plane of the head, while the vertical axes are parallel with the median plane, the twelve extrinsic ocular muscles should be in a state of tonicity only; that is, each muscle should be under the influence of the minimum of neuricity. Such a condition of the muscles is orthophoria. In this condition the tonicity, a , of the internus equals the tonicity, b , of the externus; the tonicity, a , of the superior rectus equals the tonicity, b , of the inferior rectus; the tonicity, a , of the superior oblique equals the tonicity, b , of the inferior oblique. Such a perfect state of muscle harmony presupposes that the muscles of accommodation are, likewise, in a state of tonicity, the eyes being either emmetropic or myopic.

The tonicity of any extrinsic ocular muscle is determined by its origin and insertion, which fixes its length, and by the size or volume of the muscle. There is power in the tonicity of any pair of ocular muscles and this power is manifested in the placing of the eye, when not under the influence of the guiding sensation, in a definite position in the orbit. This position is always shown by a proper phorometric test. If there is lateral orthophoria $a = b$, (a being the tonicity of the internus and b being the tonicity of the externus). If there is esophoria a is greater than b ; and if there is exophoria b is greater than a . The quantity of the esophoria shows the degree of contractility necessary on the part of the externus, added to its tonicity, for placing the eye in the primary position. Representing the neuricity for exciting involuntary contractility by x , we have $a = b + x$. This contractility is excited by neuricity, not from a volitional center but from a basal or involuntary center, which center never discharges neuricity except under abnormal conditions.

Likewise the quantity of the exophoria shows the degree of contraction on the part of the internus needed to supplement its tonicity, in placing the eye in the primary position. In this condition $b = a + x$. The neuricity exciting the contraction of the internus comes from a basal center and not from the volitional convergence center. The basal centers may be compared to storage batteries, in that they soon become exhausted. They are certainly relay stations for the volitional centers—the nine conjugate centers.

What has been said of the lateral muscles is true of the other pairs. The only desirable, non-exhausting condition of any pair of ocular muscles is that of orthophoria, in which state the basal center of neither muscle is ever called on to discharge its stored neuricity.

In any form of heterophoria, the basal centers are kept in a state

of constant activity to assist the volitional centers in maintaining binocular single vision, whereas, in orthophoria the volitional centers act alone. Several illustrations may be given. In a case of esophoria, the basal center of one or both externi is always in a state of excitation—is always discharging neuricity, in the interest of binocular single vision. In looking at any point located anywhere on the line of intersection of the extended vertical and horizontal planes of the head, the basal centers for the two externi are kept in action to prevent the visual axes from crossing between the object and the observer. If the object is at infinity, contractility plus tonicity of both externi is necessary to equal the tonicity of the interni; if the object is near by, the normal impulse sent from the volitional center of convergence (the 3rd conjugate center) is restrained from producing excessive convergence, by reflex excitation of the basal centers of both externi. If the object to be fixed is directly to the right, the eyes will be made to move in that direction by a discharge of neuricity from the 4th conjugate brain center, which discharge is sent in equal quantities to the right externus and the left internus. Since the left internus has greater tonicity in esophoria, than has the right externus, the response of the former would be more powerful than the response of the latter, under the stimulus of a given quantity of neuricity, hence the sweep of the left eye would be more rapid than the sweep of the right. To prevent the diplopia that would result, the neuricity sent to the right externus from the 4th conjugate (volitional) center must be supplemented by neuricity from the basal (involuntary) center connected with this muscle. In this movement of the two eyes the right internus and the left externus receive no neuricity from either voluntary or involuntary centers. To make this illustration clearer, the neuricity for exciting involuntary contractility may be represented by x as already shown, while the neuricity for exciting voluntary contractility may be represented by y . Since a represents the tonicity of the internus and b represents the tonicity of the externus, the following formula would represent the right-sweep of the eyes: $b + y + x = a + y$. In a case of exophoria the right-sweep of the eyes would give the following formula: $b + y = a + y + x$. In lateral orthophoria the right-sweep of the eyes would give the following formula: $b + y = a + y$. In all voluntary movements $y = y$, for the neuricity sent out by any conjugate brain-center is equally divided between the two muscles over which it presides.

Every cardinal movement of the eyes might be illustrated in the same simple way for both orthophoria and all forms of heterophoria; and so could all oblique movements be thus studied.

The principle involved in the treatment, surgical or non-surgical, of any and all forms of heterophoria, is the elimination of x , which is the doing away with the necessity for any excitation of the basal, or involuntary, centers connected with the ocular muscles. In other words, the aim of all treatment is to so relate the muscles of any pair that the tonicity of the one shall equal the tonicity of the other. In such a state, since y always equals y , the formula, of necessity, would be $a + y = b + y$, whatever may be the direction of the point of fixation.

Can prisms in positions of rest eliminate x ? Yes, but only when the prismatic effect is equally divided between the two eyes, provided the error is equal in the two. How? By allowing the eyes to assume those positions which the tonicity of muscles would cause. This would mean a full prismatic correction of the error. Prisms interfere with some of the visual judgments and are, therefore, objectionable.

Gymnastic exercise, rhythmic in character, of the weaker muscle of a pair will increase its size and therefore will augment its tonicity, so as finally to make $a = b$. In suitable cases exercise is the ideal method of treatment. It eliminates x .

In many cases the heterophoria is so great that prisms cannot be given, nor can the tonicity of the weaker muscle of a pair be so increased by exercise as to eliminate x . In these cases operations alone are capable of effecting a cure—the elimination of x . An operation on the weaker muscle must increase its tonicity, while an operation on the stronger muscles is intended to diminish its tonicity. In either case the aim is to make the tonicity of the one muscle equal the tonicity of the other. One of two operations on the weaker muscle will increase its tonicity: The one to be preferred is the shortening or tucking; the other is advancement of its insertion. On the stronger muscle, for lessening its tonicity there is but one operation, viz., central partial tenotomy. Since the heterophoric condition is, practically, always equal in the two eyes, the operative effect, whether to increase or diminish tonicity, should be equally divided between the two eyes.

Pseudo-heterophoria always depends on errors of refraction and are curable by lenses.

A CASE OF IDIOSYNCRASY TO HOMATROPINE AND ATROPINE.

BY WILLIAM LINTON PHILLIPS, M. D.

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We are taught in text books that mydriatics dilate the pupil and cycloplegics paralyze the accommodation and with but two exceptions these two conditions go hand in hand, the exceptions being cocaine and euphthalmin. But we are not taught that to these exceptions atropine and homatropine may at times be added, neither can I find a single case reported where these two drugs have failed to produce the desired effect even when pushed to the point of intoxication, providing there be no pathological condition present to bind down the iris.

This was the first case to come under my care, although I have seen others where atropine had to be used as homatropine was not powerful enough to paralyze the accommodation, although dilated the pupil in each case.

March 26, 1901, Miss D—; age 27, came to me with the following symptoms: Pain over eyes and base of neck, passing through head to forehead, eyeballs very painful to touch, had been unable to read, sew or use eyes for any near work since 1887, when she gave up school on the advice of an oculist who treated her for months with no result, being unable to find any refractive error. Receiving no benefit she consulted another oculist, who told her she did not need glasses and failed like the first.

The patient was of a nervous temperament but with a will power that was able to resist the action of atropine if that were possible, she was a decided brunette, which I mention as it is a well known fact that brunettes will resist the action of a mydriatic longer than blondes.

I tried to dilate her pupils with a solution of homatropine 5 grains to the ounce combined with cocaine $2\frac{1}{2}$ grains, this was instilled in the eyes every ten minutes for one hour and a half, she being at the last instillation able to see the finest print when in the light, her pupils were contracted but would dilate if the room was slightly darkened, this seeming to be only normal and the homatropine was acting slowly, I dropped it in for $\frac{3}{4}$ of an hour longer and proceeded to examine the fundus with the ophthalmoscope, but the instant the light was flashed on the retina the pupils contracted to pinheads, it being late in the afternoon and my office becoming dark

I decided to try atropine, thinking the homatropine was at fault and the darkened room dilated the pupils rather than the drug.

The atropine was a 2 per cent solution which I dropped in once that night and ordered it twice the next day. When I next saw her she complained of the following symptoms: When in the direct rays of the sun she was able to see the finest print, but when in her room, which was rather dark, she was hardly able to see faces, again the use of the ophthalmoscope produced contraction of the pupils to the size of pin heads, this condition remained for five days.

The homatropine I used on other patients and in all cases so used it produced a mydriatic effect, the atropine I used one year from that date, producing full mydriasis and both acted as cycloplegics.

To measure the refraction of this case I darkened the room so that the pupils dilated, as I was otherwise unable to tell by her answers whether she would accept a plus or minus sphere or cylinder, the contraction of the pupils was so great it destroyed the shadow test, but with a darkened room she accepted V. R. + .62 + .12 60°
V. L. + .62 + .12 130°

less $\frac{1}{4}$ which was prescribed.

Her vision before the mydriatic was 20/15 in each eye or a little more than normal. From the time she received her glasses until the present time, Sept. 15, 1902, she was entirely free from any of her previous trouble and able to use her eyes under all circumstances, at this date she accepted a stronger cylinder at a different axis without the sphere and with the same good results.

This time the resistance of the drugs was not so great nor the pupillary contraction so marked when examined under the ophthalmoscope, although I had to darken the room. I will not attempt to explain this rare case, for I think it was an idiosyncrasy and only adds one more mystery to that peculiar condition.

THE OPHTHALMOMETER IN DETERMINING ERRORS OF REFRACTION.

BY LEWIS H. TAYLOR, M. D.,
WILKESBARRE, PA.

The ophthalmometer has proven of such excellent help in my daily practice that I should feel its loss very greatly were I deprived of its use, but that its reading cannot always be relied upon in the final fitting of glasses is well shown by the following case: Mrs.

T. K., age 31, came to me recently for refitting of glasses. V. OD. 20/ $\frac{2}{5}$ L; OS. 20/ $\sqrt[4]{4}$ $\frac{2}{4}$. She complained of much headache and difficulty in using her eyes for continuous work.

She was wearing + 1.25 cy. ax. 180°; OS. + .25 cy. ax. 180 which were fitted 12 years ago by an excellent oculist. They do not now improve the vision. The ophthalmometer gave OD. $\frac{1}{2}$ D. ax. 115°; OS $\frac{2}{2}$ D. ax. 60°. Subjective test without mydriases was fruitless. Under atropia she selected OD. + 1.25 cy. ax. 115° = — .75 cy. ax. 25°; OS + .75 cy. ax. 180° = — .50 cy. ax. 90°. Thinking my ophthalmometer reading must be wrong or that with accommodation relaxed it would at least be different I again made a careful examination and found it almost the same as before: OD. 6.50 D. ax. 115°; OS. 2.50 D. ax. 60°.

The final selection was: OD. + 1.25 cy. ax. 115° = — .25 cy. ax. 25°; OS. + .75 cy. ax. 180 = — .37 cy. ax. 90°, making vision almost 20/xx in each. The left eye would not at all accept the axis shown by the ophthalmometer.

This is simply an interesting case showing that the corneal astigmatism may be affected by lenticular astigmatism, but it does not show by any means, that the ophthalmometer is a useless instrument.

One should make use of various methods in determining refraction errors and even then will find his skill and judgment taxed to the utmost in some rare and difficult cases.

REPORT OF A CASE OF DERMOID TUMOR OF THE CORNEO-SCLERAL MARGIN*

BY ADOLPH O. PFINGST, M. D.,
LOUISVILLE, KY.

Cases of dermoid tumors occurring on the eyeball are rather infrequent and consequently justify publication.

The growth which I beg to report was removed from a young woman of 26 years, who was otherwise in perfect health and had no other congenital deformity. A very small "birth mark" had been noticed on the right eye by her parents since birth. It had gradually increased in size until it became annoying to her, which determined her to have it removed. When I saw her the right eye presented at the outer inferior quadrant of the corneo-scleral margin

* Reported to the Louisville Surgical Society, Louisville, Ky., Nov., 1902.

a convex yellowish pink growth of firm consistence. It measured a little more than one-fourth inch across and was elevated one-eighth inch above the surface. Half of it was adherent to the cornea and half to the sclera. The surface was smooth, but presented six or more rather long hairs projecting from it. To the naked eye it made the impression of an elevated island of skin engrafted on the cornea and sclera.

It was removed by grasping it with forceps and severing it at its base from the underlying tissues with a Graefe cataract knife. Every visible remnant of the tumor was removed with knife or curved scissors. It was of interest to note that the patient suffered considerable pain during the operation, the skin surface having evidently prevented the action of the cocaine, which had been instilled into the eye.

Microscopically the removed mass was seen to have a covering of stratified epithelium, whose superficial cells were flat, and the deepest layer columnar. Numerous small or rudimentary papillae projected into the epithelial layer from the deeper structures. The mass of the growth was made up of interlacing fibers of white fibrous tissue and nonstriated muscular fibers with more or less elastic tissue. This structure extended close to the superficial epithelium. The sub-epithelial layer of areolar tissue found in normal skin was absent. The absence of adipose tissue and sweat glands was also noticeable. Half of the specimen was examined in sections, but no sign of sudoriferous glands could be found. Oblique sections of hairs and follicles surrounded by sebaceous glands were numerous. Blood vessels were abundant throughout the growth.

Considerable reaction followed the operation, swelling of the lids lasting 4 to 5 days. The corneal defect covered over rapidly, but over the sclera a small bead of granulation tissue sprung up. This was touched with nitrate of silver crystals every second or third day until it disappeared. Vision of the right eye before and after the operation was 20/50, defective function evidently being due to irregularity of the cornea. Vision of the left eye was perfect. Both fundi were normal.

Dermoids are the most common of the teratoid tumors—cysts being far more common than dermoid tumors in the strict sense of the term. The latter are made up usually of fatty and white fibrous tissue and occasionally contain portions of hyaline cartilage. They have an investing membrane of epithelium. Their structure

is characterized usually by the presence of all structures which enter into the makeup of normal skin, viz.: hairs and hair follicles, sebaceous and sudoriferous glands, nonstriated muscular fibers and adipose tissue.

The name dermoid tumors was given these growths by Ryba in 1853 when he described the first case of the kind on record. They are congenital defects and are supposed to be remnants of amniotic membrane implanted upon the eye during the first two or three months of intrauterine life, while the lids are yet apart. Von Hippel states that 65 per cent of these cases are associated with other congenital malformations, principally with coloboma of the lids, iris or choroid, but also with cleft palate and harelip. In cases of congenital defect of the lids the tumors could originate after closure of the lids, or in other words, after the second or third month.

The most frequent seat of dermoid tumors is at the outer and inferior margin of the cornea. They usually spring from the conjunctiva but encroach upon the superficial corneal and scleral tissue. Exceptionally they spring from the caruncle or from the cornea. They nearly always occur singly, but cases are on record where the two eyes had symmetrically located growths and also where two growths sprung from the same eye, one from the outer the other from the inner corneal margin. Although usually flat they sometimes have a conical shape and exceptionally have been found pedunculated. Treacher Collins states that they are nearly always oval, their long diameter corresponding with the palpebral fissure. Frequently they retain their original size indefinitely, but more often there is a gradual increase in size, due to the development of adipose tissue, when they are spoken of as lipodermoids. Their usual size is $\frac{2}{8}$ to $\frac{3}{8}$ inches in diameter and $\frac{1}{8}$ inch in height. Dermoid tumors of the corneo-scleral margin have also been observed in lower animals, notably sheep and cattle. Their presence on the eye usually causes no symptoms unless very large. The hairs on the surface which usually make their appearance about puberty, may set up conjunctival inflammation and it is about this time that these patients most frequently consult the surgeon. These growths should be removed, if for no other reason than to gain a cosmetic effect. Knapp recommends that they be removed early—after the child has passed the first year. The danger of recurrence is slight if excision has been complete.

THE THERAPEUTIC VALUE OF LARGE DOSES OF THE SALICYLATES IN UVEITIS.

BY H. McL. MORTON, M. D.,
MINNEAPOLIS.

Eleven years ago, through the fortuity of an error on the part of the druggist, a patient of mine, afflicted with plastic iritis, took several very large doses of the salicylate of soda and as a result, was remarkably benefited. The sudden improvement, with the decrease of the subjective symptoms surprised me, when the patient presented herself the following day, and careful inquiry elicited the fact that she had taken four or five sixty-grain doses of the salicylate of soda, repeated every three hours.

The large doses had induced slight tinnitus and a feeling of weakness about the knees, but not enough to inconvenience or alarm the patient. Since that time I have administered large doses of the salicylates in practically all cases of inflammation of the uveal tract, and with very satisfactory results. Where the usual dosage of from ten to twenty grains is attended with no noticeable benefit the administration of thirty to sixty grains of the salicylate of soda and repeated, will often prove efficient in hastening resolution and acts most favorably as an analgesic.

Should any unfavorable symptoms follow its administration it may be discontinued for an interval to be again repeated. I find the drug is best administered in cold water and upon an empty stomach, the absorption of the drug taking place very rapidly.

Dr. W. B. Marple in a paper before the last meeting of the Section of Ophthalmology of the American Medical Association, speaks of Dr. Gifford's recognition of the value of large doses of the salicylates (from fifty to one hundred and fifty grains a day being given) in cases of uveitis. The discussion following this excellent paper, shows a general recognition of the value of larger dosage over the heretofore smaller doses administered, but I am constrained to think that it is not fully appreciated, that a much more heroic administration of the drug than was advised at this meeting is necessary to obtain the best effects. It is true that in certain cases we find some intolerance to the drug and this must be accepted and substitute measures instituted. In the severe cases of uveitis I administer 10 grains of the salicylate of soda every two or three hours, until relief is obtained or its continuance is deemed inadvisable, or no longer necessary. By the administration of a single large dose

of sixty grains, followed by smaller doses, one may oftentimes obtain remarkable relief from the intense pain due to the ciliary engorgement. Before the administration of such a large dose, it may be well to test any possible idiosyncrasy of the patient to the drug by a few smaller doses. Clinicians have believed that the drug is a depressant of the heart, but this E. Marageliano finds not true. In moderate dosage he found the arterial pressure elevated rather than depressed by this drug. While I have never yet had any alarming or unpleasant results follow the administration of the salicylates as described, the patient should be carefully watched and the drug withdrawn in the event of unfavorable symptoms. In connection with its administration the frequent use of an effervescent aperient, and the hypodermic use of pilocarpine with a careful diet adjusted to the needs of the particular case may be added.

Locally four or six leeches applied to the temple near the outer canthus are frequently of service and may be followed by rapid dilation of the pupil in cases where atropine alone has failed to act. There is an important fact to be remembered in certain cases of iritis, especially in that class of cases in which the ciliary body largely participates in the attack and it is this; that atropine is often harmful. The dilatation of the pupil gives less area for the blood, which is thereby dammed back into the already overloaded ciliary body. In many such cases the use of scopolamin with the occasional use of eserine, is better than the routine use of atropine. I am convinced that there are cases of inflammation of the ciliary body and iris in which atropine does not act favorably.

A SIMPLE AND CONVENIENT METHOD FOR THE MOUNTING OF MACROSCOPIC SPECIMENS.

BY H. McL. MORTON, M. D.,
MINNEAPOLIS.

Illustrated.

During the past year, while working with Greeff in the Royal Charité in Berlin, I learned a method of mounting gross specimens that has to commend it such simplicity, and freedom from annoyance and time-taking detail, that I deem it of sufficient practical importance to describe.

While the method is described in his "Anleitung zur mikroskopischen Untersuchung des Auges," it is not accessible to all readers

12 METHOD FOR MOUNTING MACROSCOPIC SPECIMENS.

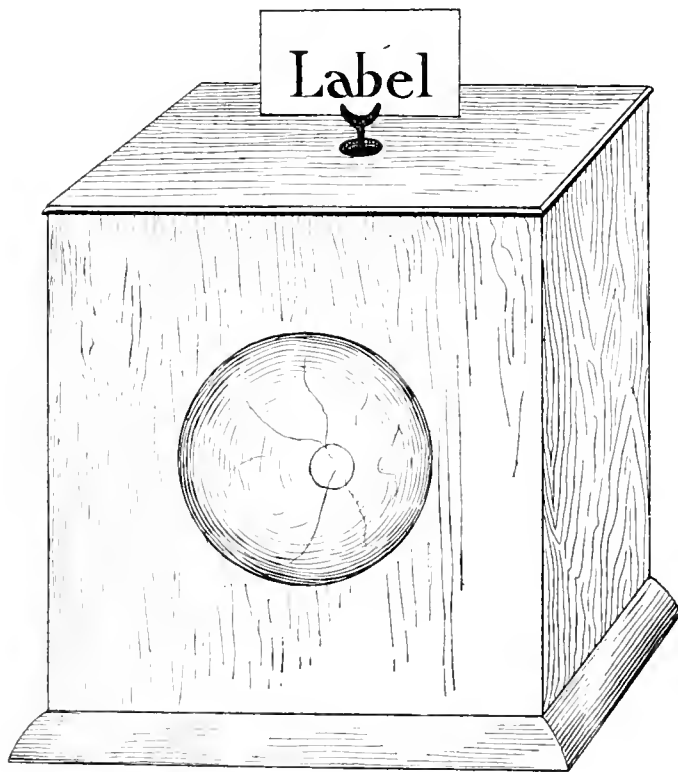
and furthermore the description there is entirely too brief, and the successive steps of the method are not explicitly described. The following will describe the steps in detail:

First: Harden the fresh specimen in 10 per cent formalin for from two to four days.

Second: Cut the eye as you desire to mount it. If to show the posterior or anterior segments, cut equatorially and if to show the lateral or longitudinal eye, cut meridionally.

Third: Wash in distilled water for ten minutes.

Fourth: Dry specimen carefully with cloth (if it is desired to remove the retina, this may be done with a cloth or a small brush).



Fifth: Make the eye fast to the back of the glass mounting jar (see illustration) with gelatine (simply mix the gelatine with a little water and heat slowly for a few hours or over night).

Sixth: After the specimen is fixed to the posterior wall of the cell let it dry for two or three minutes until sure it is well attached.

Seventh: Fill the glass jar with 10 per cent (or even 4 per cent) formalin in watery solution.

Eighth: After very thoroughly drying the top of the cell fasten

it down with gutta-percha cement. One may also cement a small clasp on the top of the glass jar to hold the label (see illustration).

Ninth: Paint about the edges and over the gutta-percha with white (or any color) paint.

The foregoing description is more in detail than one can obtain it in Greeff's splendid little book, and is the method I now follow in the mounting of specimens in my own work. When one has the gelatine the gutta-percha and the formalin prepared, the entire process takes little time, and the specimen may be taken after an operation and within two or three days be mounted in the cell and set upon the shelf for reference.

A CASE OF UNILATERAL HEMIANOPSIA IN WHICH THE WERNICKE HEMIANOPSIA PUPILLARY RE- ACTION WAS PRESENT.

BY CHARLES J. KIPP, M. D.,

NEWARK, N. J.

An unmarried woman, about 50 years of age, who had been, previous to the accident, in excellent health, was thrown from a carriage and struck on her head. She was taken to a hospital in an unconscious condition and remained in this condition for three weeks. On recovering consciousness she noticed that she was blind in the left eye and that the vision of the right eye was much impaired. I saw her for the first time about three months after the accident. She was at that time in fair health and the function of the other senses was unimpaired.

She has an unadherent scar on right half of forehead and the upper lid of right eye. Both eyes were normal in appearance, and the mobility of each was unimpaired. The right eye was emmetropic and S 5/10. The ophthalmoscope examination revealed nothing abnormal except, perhaps, slight blanching of the nasal half of the optic papilla. The examination of the visual field of this eye showed right hemianopsia, the defect passing through the center of fixation. The left half of the field was of normal extent for form and for colors.

The left eye was totally blind. The pupil was somewhat larger than that of the right eye, did not contract on exposure to light, but

reacted consensually. The optic papilla was very white and the vessels were much smaller than those of the right eye.

Examination of the pupillary reaction of *the right eye* according to the Schmidt-Rimpler method left it undecided whether or not the blind half of the retina reacted to light less than the other half. Several examinations made since then have, however, convinced me that the pupil contracts much more promptly and more extensively when the seeing half of the retina is illuminated than when the light is thrown on the blind half. In the last few months I have made a number of examinations with an instrument devised by Drs. v. Fragstein and Kemper, of Wiesbaden, Germany, and described in *Fehnder's Klinische Monatsblätter*, 1899, page 243, and I am now no longer in doubt *that the contraction of the pupil takes place only, or at least, much more promptly and more extensively, when the light falls on the temporal half of the retina.* I have taken every precaution to exclude error. The examination was made in a long, dark room, with the patient's eye fixed on an object twenty feet away.

Haab's brain cortex reflex of the pupil, I kept in mind and I am sure that the contraction was not the result of it. The pupil of the left eye contracted consensually.

It seems most probable that in this case the *left optic tract* was torn or otherwise injured, and that the *left optic nerve* was torn or compressed in the optic foramen, perhaps, by fracture of the bone, or that the chiasm was torn in the median line.

There are a few cases on record similar to this one here reported, and are to be found in *Vossius' veber die hemianopische Pupillenstarre* Halle A. S., 1901. His own case is almost identical with the one reported above, except that in his case, one-sided deafness was present, which was supposed to have been the result of fracture of the petrous portion of the temporal bone.

Vossius (op. cit.) says that about an equal number of writers approve of and oppose Wernicke's teaching. Some deny the existence of and others the possibility of bringing about the pupillary phenomenon. It is no doubt seldom seen, as the fundamental condition for bringing it about, *i. e.*, complete interruption of the conductivity, is not very frequently met with. It is therefore very desirable that every case in which the hemianopsia inaction, or rather the hemianopsia pupillary reaction, is observed, be published. In this I agree with him and therefore put the above case on record.

IMPROVEMENT OF VISION IN AMBLYOPIA-FROM-NON-USE.*

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The nature of amblyopia found in strabismus has been an object of inquiry for a number of years. Ophthalmologists had gradually become united in the view that while many squinting eyes were congenitally defective, strabismus itself led to amblyopia, or increased that previously present. It was Schweigger,¹ in the early eighties, who disturbed this peace of mind by offering arguments to show that the amblyopia of strabismus was in all cases a congenital defect, and that when improvement in vision occurred, either after an operation, or by exercise, it was due to correction of the hypermetropia and to the improvement in the use of accommodation. A. Graefe added support to Schweigger's theory and for a number of years it obtained wide adoption, although many ophthalmologists continued to adhere to the old view. Strange to say, the only arguments which could finally settle the question were slow in coming; these were, first, definite cases in which eyes with good vision became amblyopic from strabismus, and, secondly, cases of marked improvement in vision in previously amblyopic eyes after their continued use.

A. As to the first I am able to find but few cases.

1. Schmidt-Rimpler² relates the case of a boy aged seven with high strabismus and normal vision in each eye. An operation failed to correct the defect entirely. Ten years later the squinting eye could only count fingers at four meters.

2. Lewuillon³ reports a similar case.

3. Senn⁴ stated recently that he has not only been able to improve vision in the amblyopic eye by permanent closure of the fixating eye, but has even been able to produce amblyopia in the previously good eye.

4. But the most important case is that of Dr. Risley.⁵ In a dis-

Read by Title American Ophthalmological Society, July, 1902.

1. Klin. Studien ueber das Schielen, Berlin, 1884.

2. Augenheilkunde und Ophthalmoscopie.

3. Annales d'Oculistique, 1893.

4. Wochenschr. f. Therap und Hygiene des Auges, Vol. IV., p. 221. (1902.)

5. See Transact. Oph. Society, Vol. VI., p. 556. Previously reported in the Phila. Med. Times, 1873, p. 453.

cussion before this society in 1893 he related a "case in which the R. E., which was amblyopic, had been operated upon to correct the strong convergence; after four years the case again came under his observation, the L. E. now being the squinting eye. The R. E. before the operation had been almost blind, but now had perfect vision, while the L. E. had been reduced to eccentric vision so that the patient could barely count fingers. Tenotomy was done, the refraction corrected, and exercise ordered, and that at the end of three months, the vision of the poor eye rose to 6/7.5.

B. The list of cases which tend to prove that an amblyopic eye may recover its sight, is now becoming quite numerous. In 1896 Straub collected the following references:

1. Romiée,⁶ reported that systematic exercise after strabismus operation has led to improvement of the vision of the squinting up to one-sixth, to one-third, or one-half, according to the degree of amblyopia.

2. Javal,⁷ after very prolonged exercise, succeeded in restoring perfect binocular vision to a patient who had had the highest degree of unilateral amblyopia.

3. Burchardt⁸ reported that a few days after operation vision rose from counting of fingers to 3/10.

4. Dr. Johnson⁹ reported in this society in 1893 the case of a young man of nineteen who had had strabismus from the age of three. Vision of the R. E. was perfect, that of the L. E. enabled him to count fingers at six inches. A few days after the examination his good eye was injured and the eyeball removed. Vision rapidly improved until in about two weeks it reached 20/15 with or without correction of his hypermetropia.

5. Dr. Risley,¹⁰ in discussing Johnson's paper, reported three cases. The first is mentioned above.

6. In Risley's second case, by prolonged exercise, vision of both eyes was kept at 6/7.5 or 6/9. After six months of neglect, Vision in the squinting eye sunk to 1/3. By exercise and an operation, which restored binocular vision, 6/6 was obtained in each eye.

7. Risley's third case (not mentioned by Straub) is that of a child which had convergent strabismus with vision reduced to

6. *Annales de la Société Médico-chirurgicale de Liège*, 1880.

7. *Annales d'Oculistique*, 1888, p. 217.

8. *Charité-Annalen*, XVII., 1892.

9. *Trans. Oph. Soc.*, Vol. VI., p. 551.

10. *Trans. Oph. Soc.*, Vol. VI., p. 556.

1/2 in the squinting eye. After correction of the hyperopic astigmatism, the strabismus disappeared, and after several years the vision of each eye was found normal. During the discussion, Randall and Holt mentioned similar cases.

8. Bourgeois¹¹ reported a number of cases in which vision improved somewhat after operation.

9. Lewuillon¹² reported a case in which vision improved from 1/7 to normal within six weeks after the operation. He also reported cases in which there was less improvement.

10. Panas¹³ reported a case of a man aged thirty who lost the sight of his good eye from neuritis. In two years the sight of the other eye, which was highly amblyopic since childhood, had so much improved that he was able to read fine print.

To these cases, a few of which only are of doubtful value, the following must be added:

11. Simonton¹⁴ reports a case in which a squinting eye with vision —16/40, was improved to 16/16 in three months by the use of glasses.

12. Herrnheiser¹⁵ reported the case of a boy aged eleven, whose fixating eye was injured (traumatic cataract), reducing vision to counting of fingers. Even so, this eye was at first still preferred as the fixating eye. The squinting eye with +2, was at first able to see fingers at one and a half meters; two weeks later at four meters. In three months vision rose to 6/24, and in one year to 6/9.

13. Klein¹⁶ relates two cases, in both of which vision improved from the time that the amblyopic eye was forced into use, in the one case because of loss of the fixating eye through cysticercus and enucleation, and in the second by a foreign body. In both cases a relatively high degree of vision was obtained.

14. Bielschowsky¹⁷ relates a most interesting case. The patient had been examined in Schweigger's clinic and vision = 1/15 recorded. B. found the same vision five years later when the fixating eye was lost by an injury. In two and a half years vision in the

11. *Receuil d'Ophtalm.*, 1893, p. 211.

12. *Annales d'Oculistique*, 1893, p. 26.

13. *Traité d'Ophtalmologie*, Vol. I., p. 758.

14. *Ophthalmic Record*, 1897, p. 400.

15. *Wochenschr. f. Therap u. Hygiene d. Auges*, 1900, No. 41.

16. *Wien. Med. Wochenschr.*, 1900, No. 20.

17. *Graefés Arch. f. Ophthalm.*, Vol. L., p. 487.

amblyopic eye gradually increased and finally reached half the normal.

15. The most important reference is to Javal's studies of the improvement in vision in amblyopic eyes through exercise.¹⁸ These studies are the most systematic that have been made, and leave no doubt as to the great improvement that it is possible to obtain by long continued exercise according to Javal's plan.

Besides these cases we may refer to those in which sight is lost in early childhood in consequence of double cataract.

1. Leaving the older cases, I desire to call your attention to the recent publication of Axenfeld¹⁹, who reports a case of a child aged six, which after attending school for a while, became blind and was operated upon for double cataract when seven and a quarter years of age. In the meantime it had completely lost the ability to see and was in the condition of a child born blind, excepting that it re-learned to see more quickly than those who are born blind.

2. Seydel,²⁰ in 1901, reported a case of a girl aged ten who became blind when seven, was neglected, and when operated upon was in the condition of one born blind. Although the optical effect of the operation was good, it required two months until she was able to walk about alone.

3. He also reports a case of a man aged thirty-one whose sight became bad when he was four years old and was lost in his seventh year. After an operation he rapidly learned to see in about three weeks, and his recovery was more complete than in the previous case.

Both Axenfeld and Seydel conclude that a child that can see well up to the sixth or seventh year may completely unlearn how to see. Seydel states that the degree and the persistence of this amblyopia depend upon the mental condition and training.

It is proper that I should here refer to the interesting discussion of the subject in a paper of Dr. Theobald, read before this society in 1886.

To the cases already reported²¹ I desire to add the following: Mr. S., aged seventy-eight, consulted me in Nov. 11th, 1898. As a child between six and seven years of age he was injured in the R. E. with a shoemaker's awl. Traumatic cataract followed and

18. Manuel de Strabisme, Paris, 1896.

19. Monatsblätter f. Augenheilk. 1900. Appendix, p. 29.

20. Monatsblätter f. Augenheilk. 1901. p. 817.

21. The list of cases given above is not complete.

he has never been able to make use of this eye since. The L. E. has been failing for some time. Examination showed constant nystagmus of both eyes with slight divergence of the right. There was a shrunken cataract occupying the entire pupillary space of the R. E. and a minute peripheral corneal scar. The pupil reacted well to light; projection was fair; he could see movements of the hand close to the eye. The L. E. was in an advanced stage of chronic glaucoma, tension somewhat raised, corneal epithelium hazy, pupil slightly dilated, glaucomatous excavation of the optic disc(?). With this eye he could count fingers at seven feet. The inner half of the field was greatly impaired, the defect touching the point of fixation; the outer half was fair.

Fearing the rapid loss of sight in the L. E., and recognizing the dangers of an iridectomy under the circumstances, it was deemed advisable to treat the L. E. with eserine and to attempt to restore vision in the R. E. by removal of the cataract. This operation was done Nov. 28th, 1898, under cocaine. An incision was made with the keratome about two mm. from the upper corneal margin, the cataractous mass removed with the iris forceps and the remnants pressed out with a spoon. The recovery was rapid and unattended by any inflammation, and the clear round pupil admitted of easy examination of the fundus; this was found normal. It was a great disappointment, however, to find that notwithstanding the clear media, the patient saw exceedingly badly. He could not fixate, and at the time of his leaving the hospital, about two weeks after the operation, his vision was only sufficient to enable him to recognize the movements of the hand, and convex lenses made no improvement. On Dec. 21st vision equaled counting fingers at ten feet, and the field of vision was apparently normal.

On June 25th, 1899, he returned, complaining of pain in the temples. The vision of the L. E. had become further reduced, so that he could but count fingers held very near by, and the R. E. saw movements of the hand at the length of the room. The tension of the L. E. was between plus 1 and 2. The pain increasing, an iridectomy was made on July 3rd, 1899. The eye stood the operation well, but the vision did not improve, and salicylate of soda was administered frequently on account of pain.

As the vision of the L. E. had slowly diminished, the R. E. had been used more and more, and September 6th, 1899, the patient informed me that it had improved so much that he believed he was

ready for glasses. Vision with +6DS equaled 3/40; with +15.0 he read 1.5 M.

These glasses were ordered and on Nov. 22d, 1899, vision was found to be 10/40 with the same glass, and he could read fine print. From this time on he began reading the daily paper, the difficulty gradually diminishing. I examined the patient recently (July 2d, 1902) and found that with +6 his vision is 6/15 without difficulty, and with +15.0 he reads 0.5 m. German print fluently. The condition of the eye has not changed otherwise; the pupil is round and freely movable. The vision of the L. E. is reduced to seeing movements of the hand, the optic disc is atrophic without distinct excavation. Tension is normal. I may add that the patient still has some nystagmus, but my impression is that this has diminished. The L. E. is now slightly divergent.

The improvement of the vision of the amblyopic R. E. is marked and beyond question. The patient's vision after the operation was so poor that glasses were not ordered, the impression being that the sight was beyond recovery, and nine months elapsed before decided improvement was noticed. Glasses were then given and the vision increased gradually so that in two months it had reached 10/40, and two and a half years later it was found to equal 16/40.

This case is in some respects unique. In the well known case of V. Graefe vision was immediately restored after removal of a cataract of sixty years' duration. Klein, Sillex, and others have reported similar observations. Even those who admit the occurrence of amblyopia from non-use in strabismus and in double cataract in children under six or seven, do not recognize the occurrence of such an amblyopia in unilateral cataract as a result of non-use. It is probable that the cataract was not the sole factor in producing the amblyopia in the case related, but that strabismus played an important part. It is to be noted that vision was not entirely prevented by the cataract for the patient could still see movements of the hands and had fair projection of light. This much is certain that the eye was amblyopic and that it gradually recovered a useful amount of vision when forced into work. The form of amblyopia was that associated with strabismus, the chief characteristic being the loss of the power to fixate. I feel no hesitancy therefore in placing this case with those referred to in the beginning of this paper, as offering another instance of the genuineness of amblyopia from non-use.

Two years ago Silex,²² expressing his surprise that there were still those who looked upon the amblyopia found in strabismus as due to non-use, reviewed the subject in a critical manner.

He first considers the theoretical arguments in favor of amblyopia from non-use, which cannot be proved or disproved and may therefore be neglected. He next takes up the question of the observation of loss of vision through strabismus. As to the case of Schmidt-Rimpler he states that had it occurred in his own practice he would have attributed it to an error in recording. He further argues that at the age of seven years in which the central visual apparatus has been completely formed, it is impossible to lose the faculty of vision. This is disproved by the cases of Axenfeld and Seydel cited above. He does not mention the case of Dr. Risley which I am sure none here will be willing to admit to be due to an error in recording. We cannot agree with his statement that no unquestionable proof has been given, as demanded by Schweigger—that an eye with normal sight has become amblyopic, for we regard both Schmidt-Rimpler's and Risley's cases as such proof, and it must be remembered that the difficulties in the way of making such observations are very great. As to improvement of vision in amblyopic eyes, he takes the same view as Schweigger. Panas's case he throws aside because the patient had never had an opportunity to test the true visual power of the squinting eye. He relates a case of amblyopia (not strabismic) in which glasses improved vision from $1/10$ or $1/6$ to $2/3$ with glasses, but in this case there was neither loss of central vision nor of fixation. Silex's arguments do not disprove the value of the numerous cases cited in which highly amblyopic eyes have been restored to good vision. He overlooks especially the restoration of central vision where there has been loss of fixation. This does not occur in congenital amblyopia no matter how much care is given to the correction of the refractive error. No other hypothesis than the production of amblyopia from non-use will satisfactorily explain the gradual recovery of vision in this class of cases.

It is not necessary at this time to discuss the argument that the amblyopia is not constant in all cases of strabismus. This question can be understood only when we know more of the physiology of vision in strabismus—a subject which through the studies of Bieselchowsky and others is now looming in an entirely new light.

22. Deutsche Med. Wochenschr., 1900, p. 383.

REPORT OF A CASE OF PSEUDO-TORTICOLLIS WITH AB-NORMAL ASSOCIATED MOVEMENTS OF HEAD AND EYES.

BY EUGENE RICHARDS LEWIS, M. D.,
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Having read with much interest the article on "Associated Movements of Head and Eyes" by Posey in the *Journal of the American Medical Association* for November 29th, 1902, in which he reports two cases, I am impelled to report the following case which has been of not a little interest to me. Though I am not able to bring it within any approach to a conclusion, having had the patient under observation for only two months, nevertheless I feel that in connection with Posey's article, data concerning the case may be of value, even in their present incomplete condition; and I hope to be able to keep the patient under observation long enough to be able to give more conclusive details concerning the case at some future time.

This case, which falls under Group 4 of Posey's classification, "Related but not compensatory Movements," has caused me no inconsiderable worry and vexation, both in my work with the patient, and in attempting to arrive at conclusions. I will relate the points of the case.

Alma G., age 8 years. On October 1st, 1902, her mother brought her to me on account of headaches with which she has suffered during the past year. During the past two months, she has been subject to acute exacerbations of a chronic follicular conjunctivitis, and has developed a marked marginal blepharitis.

Parents both living and healthy. Mother has never been ill since childhood, when she had the usual exanthemata. No history of pelvic disorder of any kind, nor of premature labor or miscarriage. Father has had sthenic pneumonia three times within past five years, but otherwise has been in good health. There is no history of rheumatism in the family. Patient is the oldest of four children. One brother and two sisters, strong and well nourished. None of the family have ever had occasion to consult an oculist, nor have any of them been subject to nervous disorders.

Patient had "lung fever" at 4 months, "intermittent fever" between ages of 3 and 4 years, measles, chicken pox, and typhoid fever about 15 months ago, after which she became particularly strong and gained much flesh, weighing at one time 80 pounds. Last winter

(1901-2) she suffered from repeated "colds," coughed much, became a mouth-breather, and developed a general catarrhal condition of the upper respiratory tract. She had begun going to the public school at the age of 6 years, and had progressed rapidly in her studies, being well advanced in school and particularly fond of reading. During the winter in which she developed the above mentioned catarrhal disorders she had frequent headaches which were attributed to her "colds." It was noticed soon after this time that she seemed to have some little difficulty in her reading, and her mother attributed this to the effect of her frequent headaches on her sight. She had always been very ambitious in her school work, and had vied with her schoolmates in attempts to be at the head of her class, but now, to her extreme chagrin and dismay, she found herself unable to keep up in the struggle for first place; she lost her standing, and her teacher, who was keenly interested in her, began to consult her parents concerning an unaccountable change which she noticed in the patient who had until this term been one of her brightest scholars. She found her becoming inattentive and dull of comprehension, where formerly she had been alert and quick to perceive—in fine—she described a typical aprosexia. Formerly robust and chubby, she began to grow thin, irritable and extremely nervous. Her weight fell to 63 pounds.

With the summer vacation, however, her condition improved, her headaches became less frequent, and she was less nervous. She increased in weight to 70 pounds. This improvement was cut short by the beginning again of her school work. Her headaches returned and there appeared redness of the lid margins, and moderate lachrymation, which aggravated the condition of the lid margins because of the frequent use of the handkerchief to wipe away the tears which accumulated. Her nervousness increased, and in this condition she was brought to me for relief.

At the first examination my attention was attracted to the peculiar position and movements of the head and eyes. Her head was held in a depressed position and at a tilt downwards and to the right, so that the eyes in looking straight ahead, were directed upwards and to the left, the upper lids covering the irides well down to the pupillary margins. On directing her attention to the test letters, a slight lateral swaying of the head was noticed—slow and rhythmic, from side to side. On being told to hold her head still she would do so for a while, but soon the swaying would again appear and it was evident that this was a part of her habit of scrutiny, at least for

distant observation. Her whole appearance was one of mingled bashfulness and worry. Repeatedly I told her to hold her head straight and still, whereupon the eyes would assume their proper positions in the orbits, only to return to their former position as her inattention allowed the depression of her head to return. The swaying movements of the head were noticed only at such times as she was scrutinizing. At other times her head, though still depressed, remained still. There was no stiffness of any of the cervical muscles to account for the malposition and I presumed it to have originated solely in habit. The associated eye movements were apparently normal,

but I found a distance phoria of $\frac{5m.}{5^{\circ}-6\frac{1}{2}^{\circ} \text{ eso; } 2^{\circ}-3\frac{1}{2}^{\circ} \text{ r. h.}}$ and

a near phoria of $\frac{.40 m.}{2^{\circ}-3^{\circ} \text{ eso; } 2^{\circ}-3^{\circ} \text{ r. h.}}$ differing between these

limits at successive examinations. In testing her near vision, and her range of accommodation the same rhythmic swaying seen in distance scrutiny was noticed. She could stop this at will, but with relaxation of vigilance in her control of these movements they would

reappear. $\sqrt{5/viiss??} \parallel \text{Ophthalmometer} = 2.50 \text{ } 100^{\circ} + 3.00 \parallel \text{to } 0. =$
 $\sqrt{5/xxx} \parallel = 2.50 \text{ } 100^{\circ} \text{ Punctumeter} + 3.50 \parallel \text{to } +.25 =$

$-.75 \subset + 1.50 \text{ } 90^{\circ} = 5/viiss \parallel$

manifest— $.75 \subset + 2.00 \text{ } 100^{\circ} = 5/xv + \parallel$ Ophthalmoscopic examination was difficult because of smallness of pupils and restlessness of patient. I therefore used homatropin, finding fundus negative except for general hyperaemia: disc somewhat pinker than normal. (Patient is decided brunette.) Under homatropin

$\sqrt{5/xv??} = = 2.75.100^{\circ} + 3.50 \parallel$
 $\sqrt{5/lx?} = \text{Ophthalmometer} = 2.87.110^{\circ} \text{ Punctumeter} + 3.75 \parallel$

to $+.50 =$
to $+.75 =$ phoria $\frac{5. m.}{5^{\circ} \text{ eso; } 3^{\circ} \text{ r. h.}}$ $\frac{.40 m.}{3^{\circ} \text{ eso; } 3^{\circ} \text{ r. h.}}$

I took her out of school, ordered the use of Seiler's solution nasal douche for nasopharyngeal condition, and atropin was instilled for 10 days, during which time I applied silver nitrate and protargol alternately to the lids. She used Ungt. Hydrarg. Oxid. Flav., and chloreton adrenalin collyrium at home in addition to this treatment for the lids, and also began a course of the glycerophosphates of lime and soda. At the end of 10 days the lids were well and the nasopharyngeal condition somewhat improved. Just at this time, however, she contracted a "cold" which delayed her progress for a few days.

During the time she was under the influence of the cycloplegic, notwithstanding daily attempts to do so, I was unable to bring her

vision above $5/\sqrt{n}$ s. Skiascopic revision of her acceptance at the test case indicated a higher degree of hyperopic astigmatism than I could get her to accept. (I put this down as a failure in skiascopy on my part in spite of my best efforts to obtain a perfect shadow movement.) She was finally allowed to come out of her cycloplegia. During all this time the pseudo-torticollis and lateral swaying of the head remained just as I have described it. With fully returned accommodation and lids in good condition, I again placed her at the test case. She frequently declared she could see more comfortably and *more clearly* with her head in the habitual position, and with the test letters, subjective provings of this claim of clearer vision seemed to bear out her testimony as to this fact. Furthermore, when her head was depressed as described, her esophoria was $1^\circ - 1\frac{1}{2}^\circ$ less for distance, than when her head was held upright. The measurements of the muscle balance were made with considerable difficulty, as it was only with the most obvious restraint on the part of the patient that the head was prevented from moving with its accustomed lateral sway. This, however, she was able to prevent, by effort of control.

I now ordered $+ .75 = + 2.00$ at 110° for constant wear, and so
 $+ .75 = + 2.00$ at 110°

tilted the lenses that she would be looking directly across the upper rim of the spectacles if she persisted in holding her head in the habitual position of depression.

I have advised operation for relief of the nasopharyngeal and nasal obstructions, to which the parents have consented, but which has not yet been done. As soon as she will accept a stronger sphere I shall change her lenses, and I anticipate finding a material change for the better in her muscular imbalance as the result of developing greater tolerance of spheric correction.

Though this case exhibits only insignificant head movements, no lack of binocular single vision, and no nystagmus proper, it resembles those of Posey in other respects, and I think it may be found of interest, considered in connection with his cases.

1110 MAIN STREET, DUBUQUE, IOWA.

TOXIC AMBLYOPIA FROM OIL OF WINTERGREEN.

BY WM. L. BAUM, M. D.,
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A 28-year-old traveling salesman, suffering from purulent gonorrhea of two weeks' duration was suddenly seized with severe

pain in the right knee joint. The joint was somewhat swollen and very sensitive; the patient was extremely restless and thirsty; temperature 101.2°. Cold compresses were applied to the joint and oil of wintergreen in capsules containing each ten minims was prescribed. Two capsules were to be taken every two hours. Two days later (July 12th) he complained of headache, ringing in the ears, dizziness and *especially of yellow vision*. He did not see well, and was unable to read (temperature was normal). Oil of wintergreen was discontinued. The color perception became normal about the fifth day. He had taken in all 36 capsules (about 24 c. c. of the oil) in 48 hours.

ONE HUNDRED AND FIFTY MAGNET OPERATIONS.

BY WILLIAM A. FISHER, M. D.

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Illustrated.

The subject of metallic foreign bodies in the eyeball and their treatment has been presented so often by some of our best clinicians that I do not expect to add much that is new but a general discussion of the subject may help us to treat future cases more intelligently. So much has been written regarding the different magnets in use for extracting metals that are attracted by a magnet that I will not go into the detail of their construction. Moreover, I will not touch on magnets, other than the giant magnet as I scarcely ever use the small one, although I am aware that a foreign body in the anterior chamber can be readily removed with any magnet. In a former article on magnet operating I recommended the giant magnet to draw the metal into the anterior chamber and its removal from the anterior chamber with the Hirschburg magnet. I now see no use of the delay and worry to an excited patient for changing magnets, because I believe that the giant magnet is quite as convenient for removing the metal from the anterior chamber as the small magnet.

I will present five years' work with the giant magnet and hope to have a free discussion by many members of this society to some of whom I have given assistance in magnet cases. Before the advent of the giant magnet, a scleral opening and the introduction of an instrument into the vitreous were imperative. A foreign body be-

Read before the Chicago Ophthalmological and Otological Society.

hind the lens is quite serious and destructive to the eye in so many cases that we shudder to think of putting an instrument, however delicate, into the vitreous to remove it. Nothing is more agreeable to the surgeon than the appearance of a piece of metal in the anterior chamber after he has applied the magnet to the cornea. He knows full well that no such thing could have happened without the giant magnet and that the chances of saving the eye ball are poor, when the foreign body remains in it. Metal in the anterior chamber is easily removed with any magnet.

When should the operation be performed?

No delay should be tolerated when a foreign body has entered the eyeball. If the object be iron or steel the magnet should be applied as soon as the patient can be prepared for the operation. The sideroscope may be employed, as its use causes no delay. An x-ray picture only causes delay and this favors infection. We can remove the metal long before it is possible to have the x-ray done. X-ray pictures are only of use in old cases, for recent ones the loss of time is too great. Use the magnet in a proper manner with a negative result in a recent injury, and even if later the foreign body is located with an x-ray picture, what more can be done? A negative x-ray picture after an unsuccessful magnet operation gives us double assurance that a foreign body is not present.

SIGHTLESS AND GLASS EYES.

Sightless, quiet eyes that appear perfectly normal are preferable to glass eyes. After enucleation the use of an artificial eye often militates against the chances of obtaining employment and lessens the earning capacity. Magnus and Wurdemann estimate the loss of an eye in mechanics at 27 to 30 per cent during the first year after the accident and 18 to 20 per cent during the subsequent period. Sightless eyes are often not recognized.

METHOD OF OPERATING.

When a foreign body is suspected and the lens has become opaque, no difference of opinion exists as to the method of extracting. We apply the tip of the magnet to the center of the cocainized cornea, increase the current slowly until we have the full force unless the foreign body appears with a less amount. If the foreign body does not appear, we turn the current off and approach the cornea again, this time placing the tip of the magnet in contact with the cornea near the periphery. The current is gradually turned on and we are usually rewarded by seeing a bulging of the iris. The current is then

quickly broken and the magnet position changed to make the metal pass through the pupil into the anterior chamber. The current being once more slowly turned on, we see the foreign body in the anterior chamber. Having made an opening in the cornea in a convenient place with a keratome or Graefe knife, we apply the magnet to the opening and turn on the current slowly until the metal adheres to the magnet and the operation is finished. Such a case is an ideal one and also one of the most common. I am really surprised if such a case does not terminate in this manner. If the foreign body does not appear on the second application of the current, it is sometimes necessary to turn on the full current and make and break the current several times to dislodge the foreign body. If the metal has entered the eye back of the lens, some operators prefer an opening in the sclera and removal at that point. The dangers of a scleral opening are great, yet the danger of wounding the lens is also to be considered, if we attempt to draw the metal up to the lens around and through the zonula into the anterior chamber. Not being able to estimate the size of the metal, we must take some chances. If the metal be very large, the injury to the lens is not of much importance, for large pieces usually destroy the eye. If the piece is small it is possible to draw it around the lens through the zonula into the anterior chamber without wounding the lens. Such an operation is ideal and gratifying. I am of the opinion that all foreign bodies should be extracted through the anterior chamber, although a foreign body that has passed through the sclera back of the lens suggests removal through the enlarged original wound. I wish to show you this evening a successful case that was operated upon in this manner, but I am not as confident of a final good result as I should have been had I removed it through the cornea.

COURSE OF METAL THAT IS ATTRACTED.

Some operators object to the giant magnet when the metal is a long piece lying crosswise in the vitreous, fearing the great strength of the magnet might draw the piece forcibly into the delicate structure

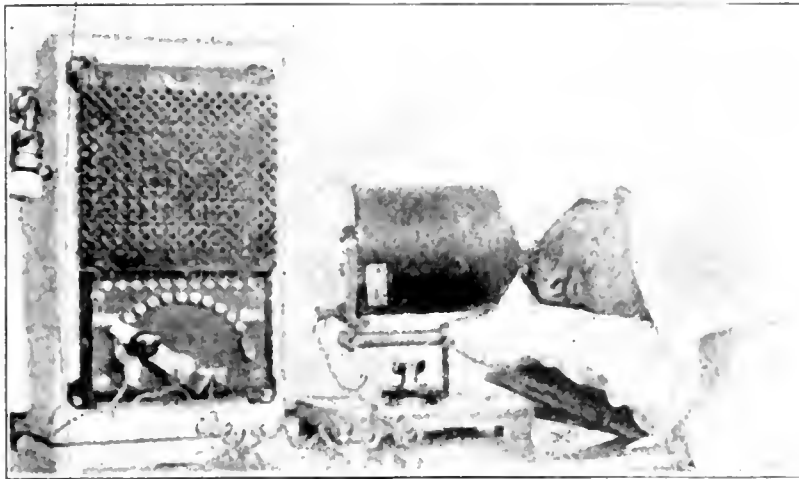


Fig. 1

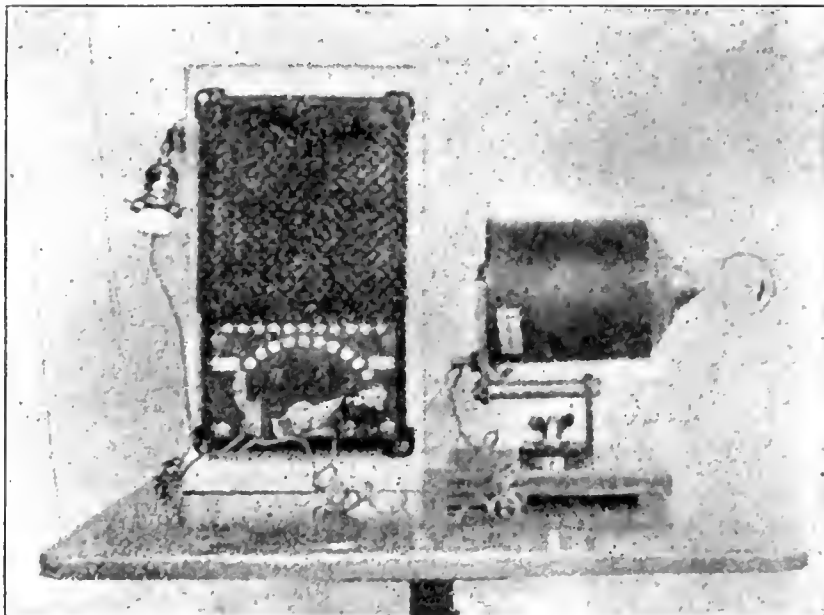


Fig. 2

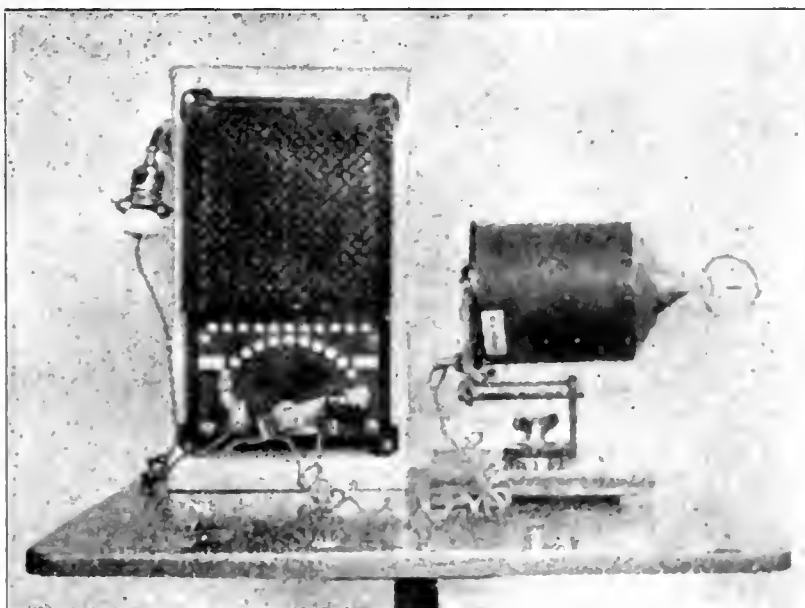


Fig. 3

of the eye. This fear is groundless, for we do not require any such strength. We only use enough current to attract the foreign body. If the foreign body is in the vitreous and laying crosswise (Fig. 1) it will not be brought broadside through the vitreous but turn and approach the magnet lengthwise. (Fig. 2.)

INSTRUMENTS FOR OPERATING.

In the operating room of the Chicago Eye, Ear, Nose and Throat College we have a giant magnet, Hirschburg magnet and a sideroscope. We also have the instruments for operating "except the cutting instruments" made non-magnetic. It is often desirable to use a speculum and forceps and these must be non-magnetic.

TWO GREAT CLASSES.

Magnet operations may be divided into two great classes; first, for eyes that positively contain a foreign body and second, those in which we have every assurance of the presence of a foreign body but the magnet gives us a negative result. It is not uncommon for a patient to give us an exact history of being struck in the eye with a piece of metal and on examination we find a wound in the cornea, a corresponding one in the iris, an opaque lens and minus tension. What more could we ask to make a diagnosis of a foreign body in the eye? Such histories may be misleading. We often apply the giant magnet to such cases with a negative result. If it were not for the giant magnet we should be forced in many of these cases to enucleate rather than subject the patient to a possible sympathetic inflammation. We do not think of enucleating if assured that there is no foreign body in the eye. To illustrate this—a case was brought to the Chicago Eye, Ear, Nose & Throat College last summer by a competent oculist of large clinical experience, with a history such as I have just related. The Doctor was consulted just as he was getting ready to spend his vacation in the northern lakes and he brought the patient to my clinic. Being in a hurry he left him for me to operate upon and return to his associate for treatment. The case seemed so clear that the Doctor explained the injury to my class and told them what

a choice case it was for the magnet. He said one could really see the black metal but the black spot proved to be only an opening in the iris. I tried the magnet in all positions with a negative result. The Doctor wrote me that the patient is a railroad man and has gone back to work and passed out of his hands. The negative result of the magnet is not positive proof that there is an absence of metal in the eye, but I have so many cases of this kind that I am willing to affirm that there is no metal in the eye when I cannot find it with the giant magnet and have a negative x-ray picture.

STRENGTH OF GIANT MAGNET.

Some operators have criticised the magnet on account of its strength. I am sure this is only a fancy, as the giant magnet with a properly constructed rheostat can be made weaker than a Hirschburg. It is often desirable to have a very strong magnet and I never worry about the strength when I can regulate it.

CHOICE OF ANESTHETIC.

The patient's general behavior will guide us in the choice of an anesthetic. In most of the cases a 4 per cent solution of cocaine will be sufficient. The patient does not experience much pain from a magnet operation and can be of much assistance to us by moving his eye in the direction we desire. In order that this report may not be misconstrued, I wish to say that I have included the cases that gave me a clear history of having metal in the eye and the magnet gave a negative result.

AUTHORS' STATISTICS.

Total number of cases one hundred and fifty.

Symptoms of metal in eye but negative result

 with magnet49 Cases

Metal removed97 "

Metal found in eyeball after enucleation—"magnet

negative" 4 "

RESULTS.

Good vision	96 Cases
Sightless eyes—"external appearance good".....	34 "
Enucleations	20 "

The magnet failed to extract the metal in only four cases in which the metal was found after enucleating, but I believe that it was not so much the fault of the magnet in not extracting the metal from these cases as it was my inexperience in handling the instrument. To do the magnet justice very large pieces of metal are usually fatal to the eye, no matter how they are extracted. Before closing, I wish to show you three successful cases, illustrating the three classes of cases we find in such operations.

First, Mr. K., age 34, came to me Oct. 22, 1902, an hour after receiving a piece of metal in the anterior chamber of right eye. The metal was easily removed and his vision with correction is 20/30 in each eye. I am of the opinion that 20/30 is as good vision as he enjoyed before the injury.

Second, Otto P., age 6 (referred to me Sept. 14, 1901, by Dr. Fuller), while playing with two hammers a piece of metal flew from one of the hammers and struck him in the right eye passing through the cornea, inner part of iris and lens. The metal was drawn into the anterior chamber and removed without difficulty. You will see that the eye looks perfect except for an opaque capsule. His perception and projection are perfect and good vision may be expected.

Third, Mr. W., age 25, referred to me Aug. 31, 1902, by Dr. Stewart, of Kewanee, Ill. When I saw him the next morning after his accident, I found a wound in the sclera back of the clear lens of left eye. He gave me a perfect history of being struck in the eye with a piece of metal. There was some blood in the vitreous which made it impossible to locate the foreign body. After cocainizing the eye the magnet was brought in contact with the wound, very little current being used to demonstrate the presence of a piece of metal. An opening was made in the conjunctiva exposing the wound in the sclera and held apart by small non-magnetic retractors. The scleral wound was now made larger and the metal removed without difficulty.

The conjunctiva was stitched over the scleral opening and the patient was put to bed. He was discharged from the hospital in 9 days without any irritation. His vision is 20/60.

103 STATE STREET.

The Metropolitan Asylums Board (London) reports as in process of construction, two ophthalmic schools. These schools are for the education of Poor-law children, who are suffering from ophthalmia. The object of separate education is, of course, the prevention of infection of other children. Mr. Treacher Collins has been appointed to supervise the medical administration of these schools.

The surgeons of the New Orleans Eye, Ear, Nose and Throat Hospital have noted the great number of patients entering the institution from the country around New Orleans suffering from partial or total blindness. An investigation has disclosed the fact that a cheap antiseptic, containing a large amount of wood alcohol, has been used throughout Louisiana. The city chemist found as much as 30 per cent of methyl alcohol in some of these specimens, rendering them totally unfit for internal administration. As methyl alcohol, when taken internally, acts directly on the optic nerve, the majority of the persons affected will not fully recover their eyesight.—*Philadelphia Medical Journal*.

At a meeting of the directors of the Manhattan Eye and Ear Hospital, held December 10th, it was decided to begin as soon as practicable the construction of a new hospital building. The present hospital has proved quite inadequate for the increasing demands upon it, and the proposed new building will contain from 125 to 150 beds, as well as be more perfectly equipped for the work of the institution. At this meeting it was announced that an offer of \$50,000 had been received from a gentleman, on condition that \$150,000 in addition is raised by the first of January, 1904. The gift is conditional, also, on the hospital being removed from its present site and the establishment of a special ward for children, which shall perpetuate the name of the donor.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XII, No. 1. CHICAGO, JANUARY, 1903.

NEW SERIES.

EDITORIAL.

THE TERM SKIASCOPY.

In the end the supreme authority in determining the meaning of a word, or the proper word to express a certain idea, is usage. The usage may be local, establishing a dialect, national, fixing the word of one language, or world wide. But within its sphere, popular usage finally becomes supreme. In general that will be regarded as the better word which has the wider use to support it.

In view of these facts, it seems worth while to call attention to the use of the term "skiascopy." It is not so old a word as retinoscopy; but neither is retinoscopy so old as keratotomy, and keratotomy had the advantage of being the suggestion of the originator of the test. Keratotomy was given up because it was inappropriate and misleading. The *Index Medicus* placed it under the heading, diseases of the cornea, a very reasonable position for the word, although an entirely inappropriate classification for the thing signified. The procedure in question is not a method of examining the cornea. Neither is it a method of examining the retina, except that as an accident the refraction of the retina approximates the refraction of the surface from which the light reflex is obtained.

It was because of this inappropriateness of retinoscopy, and the tendency even then observable in the literature of the subject toward the general use of the more reasonable term, that the writer, some years ago, gave up its use, and began to employ skiascopy in its place. A recent examination of the literature of the subject shows that these reasons have had equal weight with most others who have written on the subject.

Outside of those who write in English and, indeed, outside of a small group of American writers, the term skiascopy has come

to be almost universally employed. In examining the French and German literature of the last two years, with references also to Italian and Spanish, it is found that the term skiascopy has been used by seventeen writers; while the term retinoscopy occurs but three times, and then only in the quoted titles of American articles.

This is quite a striking fact in regard to the French literature, since both retinoscopy and skiascopy were proposed by French writers. But it is still more striking that in Hirschberg's 450 page catalogue of his library, issued last year, the term retinoscopy does not occur. Of the twenty-two monographs and reprints there catalogued, eighteen employ the term skiascopy or skiascopie, and four use shadow-test, "shattenprobe," or an equivalent.

In spite of these facts those who speak and write will probably continue to use such language or dialect as they please. But to any one who does some reading outside of his mother tongue, it seems a matter for regret that local or national ignorance, or self-sufficiency, or the mere desire to be peculiar, puts obstacles in the way of a universal language of science.

TOXICITY OF METHYL ALCOHOL.

In the introductory paragraph of a very comprehensive work on the Toxicity of Methyl Alcohol (The Johns Hopkins Hospital Bulletin, 1902, XIII., p. 213) Dr. Reid Hunt, associate professor of pharmacology in the Johns Hopkins University, pays a deserved compliment to the workers in our specialty. He calls attention to the increase in the number of cases of poisoning by methyl alcohol, and the fact that many deaths have resulted from the use of preparations containing it; he says that there seems to be much ignorance of the fact, even among physicians, that the substitution of methyl for ethyl alcohol in any preparation intended for internal use would inevitably be accompanied by the greatest danger; and continuing, he states that very little has been published recently concerning the general pathological action of methyl alcohol, "while much has been written concerning the action of methyl alcohol upon the eye, and considerable experimental work has been done upon this subject (notably by Friedenwald and Birch-Hirschfeld)."

In this article, which is of particular interest to the ophthalmologist, Hunt considers the subject in its two forms, acute and chronic poisoning. In speaking of acute poisoning, he calls attention to the similarity in general of the symptoms caused by acute poisoning with methyl, ethyl and the other alcohols of this series,

and he points out the fact that in acute poisoning the action of methyl alcohol differs from that of ethyl alcohol chiefly in that the symptoms caused by the former are produced more slowly and the duration of the intoxication is more prolonged.

On the question of the relative toxicity of methyl and ethyl alcohols, i. e., the relative quantities which, when administered in a single dose to an animal, will cause death in a short time, he reports the findings of other investigators (Dujardin-Beaumetz and Audigé, Joffroy and Serveaux, Baer) and the results of experiments on animals by himself. His experiments show that in the lower animals death is caused more rapidly by one or two large doses of ethyl than by corresponding amounts of methyl alcohol. But he says that the question as to which of these alcohols is the more poisonous to man in acute cases is a very difficult one to answer. Among the complications that arise in answering this question is the fact, as he points out, that a fairly large percentage of the human race (at least, the part of it inhabiting America and Europe) have acquired a certain degree of tolerance to ethyl but not to methyl alcohol—a tolerance, which almost always exists, in those who are exposed to the dangers of methyl alcohol.

In closing his discussion of the subject of acute poisoning by methyl alcohol, Hunt points out the fact that some organs are much more susceptible to its injurious action than to that of ethyl alcohol. Such is the case in the eye; all of our experience shows that methyl alcohol is capable of injuring the eye to a vastly greater extent than is ethyl alcohol.

In his consideration of the subject of chronic poisoning with wood alcohol, Hunt says that the fact that the effects of a single dose of methyl alcohol are long continued suggests that it would be an especially dangerous substance to give at short intervals for any length of time—its cumulative action.

He again compares the effects of methyl and ethyl alcohols. In chronic and subacute poisoning by these alcohols the striking point, in contrast to their effects when the poisoning is acute, is the dissimilarity of their action. Hunt speaks of the experiments of other investigators and particularly those of Birch-Hirschfeld, who experienced difficulty in keeping animals alive for even short periods when small doses of methyl alcohol were administered at short intervals—we all know that one form of animal (man) takes large quantities of grain alcohol at frequent intervals for years without fatal results.

In the "*Fate of methyl alcohol in the body*" we meet a fact of almost as much interest as is that of its selective action on the retina. The administration of it leads to the formation within the body of a markedly poisonous acid (formic acid) and, possibly, formaldehyde. Wood alcohol is but partially oxidized in the body. Hunt says that this explanation is found in the work of Pohl. Also, Pohl's work shows that probably either methyl alcohol itself or some derivative of it is retained in the body and is then slowly converted into formic acid.

The fact that when methyl alcohol is given to an animal or a man a considerable quantity of formic acid can always be found in the urine leads Hunt to the statement that it would be interesting to determine whether any formic acid or methyl alcohol is excreted in the tears.

A part of one of the closing paragraphs of this most interesting article is as follows: "Pohl showed that the administration of sodium bisulphate simultaneously with methyl alcohol caused a great increase in the excretion of formic acid in the urine; it would be an interesting problem to determine whether this salt would be of any therapeutic value in cases of poisoning by methyl alcohol." This suggestion may fall on barren ground in other fields; in that of ophthalmology we venture the opinion that it will be thoroughly investigated.

BROWN PUSEY.

Biographic Clinics.—Speaking of visual adjustment, the New York critics are having something to say of a forthcoming book by Dr. George M. Gould, who advances a brand new idea, viz., that DeQuincey, Darwin, Huxley, Carlyle and Browning, all suffering from a malady which baffled their physicians, were really victims of "eye strain." He declares that a competent oculist could have transformed their lives. Dr. Gould subjected the lives and letters of those great authors to the closest medical examination, and thus deduces his conclusion. He calls his book "Biographic Clinics." "The question is, Would the world, if it could, have the lives of those men transformed? Would Carlyle be Carlyle at all without that bad stomach or 'eye strain'? Where would be DeQuincey's immortality without his malady and his opium? As for Darwin and Huxley and Browning, they may have had eye strain, but what far-seeing vision in the realms of science and poetry did they bequeath to humanity!"—Emel Jay, in *The Chicago Evening Post*, Saturday, Dec. 20th, 1902.

REPORTS OF SOCIETIES.

SOCIETY OF OPHTHALMOLOGISTS AND OTOLOGISTS, OF WASHINGTON, D. C.

REPORTED BY DR. W. N. SUTER, SECRETARY.

October 17th, 1902.

Dr. Polkinhorn exhibited an ingenious contrivance for varying the test letters by means of a string running from the test card to the seat of the operator. His device differed from those in common use in that it made a change of letters only in the normal vision line, which he considered an advantage over the method of changing the entire card.

The essay on the eye, entitled Operations for the Wearing of an Artificial Eye, was read by Dr. Polkinhorn. After referring to the cosmetic disadvantages of simple enucleation, he described the various procedures which have been practiced to effect greater fullness of the orbit and better movement of the artificial eye than results from simple enucleation. He spoke of the Mules operation, the sponge grafting operation of Dr. Belt, and the modified Mules operation, in which a globe is inserted into Tenon's capsule. The reader said that in his association with Dr. Webster Fox, of Philadelphia, he had had excellent opportunities to observe the results gained from this kind of treatment. He said Dr. Fox had in his recent operations substituted a gold ball for the glass ball formerly used, thus avoiding the danger of subsequent breakage. Dr. Polkinhorn said that he had inserted the glass ball in six instances; in three of these the ball had been expelled, in one from the child removing the bandages and rubbing the eye, in the second probably from debilitated physical condition, and in the third without any discoverable cause. In the remaining three cases the result was good, the cosmetic effect being greatly better than that afforded by simple enucleation. He thought that implantation of a globe should be done, if possible, whenever the cosmetic consideration was sufficient to justify the prolonged healing process.

In the discussion Dr. Belt said that he had not done any sponge grafting operations recently, but that this was not because he had lost faith in the operation; it was because he had not had patients who were willing to undergo the more severe operation. He thought the patients should have the choice in the matter, and it usually

resulted in their preferring the more rapid method. In several of the grafting operations which he had been able to watch through a number of years the result still remained excellent. He thought that with more careful selection of cases than he had at first exercised, a greater proportion of successes could be obtained. He thought that the idea of the modified Mules operation—the plan of inserting an artificial body into Tenon's capsule was original with himself.

Dr. Butler said that he had formerly practiced Mules operation and that he still regarded the modified operation as admissible and advisable in certain cases, but that these cases were in small proportion to those calling for simple enucleation, because of the length of time required for healing. He thought the introduction of the *reform eye* of Snellen still further reduced the number of cases for globe implantation. He said that much could also be done by exercising care to secure a good stump, as by suturing the recti muscles to the conjunctiva.

Dr. Burnett said he thought a better stump might be obtained by allowing a blood-clot to remain in the capsule, as had been practiced in mastoid operations, some operators claiming that the sinking of the scar was materially reduced by this means.

Dr. Polkinhorn in concluding the discussion said he thought the blood-clot advised by Dr. Burnett would be rapidly absorbed without becoming organized, just as occurs after the operation for chalazion.

November 21st, 1902. Dr. Burnett reported a case of sympathetic ophthalmia occurring in a man 39 years of age, from an injury received 33 years previous to the outbreak of sympathetic disease. When 10 years of age the patient had had the lens removed, this having been rendered cataractous by the original injury. When first seen by Dr. Burnett at Emergency Hospital, the sympathetic eye exhibited the appearance of typical cyclitis, while the injured eye presented almost no injection. This was on Saturday. The patient did not consent to enucleation until the following Tuesday, by which time the injection of the injured eye had very much increased. The condition had improved since the enucleation, but it was too early to give a definite prognosis.

Dr. Butler, referring to Dr. Burnett's suggestion at the previous meeting, said that he had recently had occasion to enucleate an eye and that he had allowed a blood-clot to remain in Tenon's capsule and he thought the fullness and motility were better than he

usually obtained after simple enucleation. Dr. Wilmer said he always allowed a clot to form in the capsule before tightening the sutures. He thought the clot was quickly absorbed, but that it did a certain amount of good by temporarily holding the parts in position.

Dr. Belt reported that the bruit in the case of pulsating exophthalmos, which he had exhibited to the Society four years ago, had suddenly disappeared in the last fortnight without any demonstrable reason.

Dr. Fox exhibited some solid bi-focal glasses, and gave some interesting history in regard to the manufacture of these lenses. He presented a copy of the patent office record showing that an application for a patent made in 1885 had been refused on the ground that a patent for the same process had been granted in 1836.

In the discussion which followed, the concensus of opinion of the members was that the disadvantages of solid bi-focal lenses are so great as to preclude their usefulness except in a few special cases.

SECTION ON OPHTHALMOLOGY—COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting, December 16, 1902. Dr. William Thomson, Chairman, presiding.

Dr. Edward A. Shumway exhibited a woman, aged 42, with *Persistent Hyaloid Artery* of the left eye. The lens was clear, and the artery extended as an opaque white cord, from its posterior capsule, slightly to the nasal side, to a point just above the entrance of the optic nerve, where it apparently joined a branch of the arteria centralis retinae. The cord moved freely with the movements of the eye, and no trace of a separate canal of Cloquet was visible. The vitreous was free from other opacities. Surrounding the optic papilla there were extensive areas of retino-choroidal atrophy, with dense masses of pigment, in the macular region and at the point above the nerve entrance, where the opaque cord was attached. The fellow-eye also showed retino-choroidal atrophy, but no remnant of the hyaloid artery. V = R.E., 5/60; L.E., 5/22. Everbusch divided these cases into two classes: (1) True blood-carrying or obliterated arteriæ hyaloideæ; and (2) membranous opacities which correspond in position to the canal of Cloquet, but which have arisen by post-embryonal changes in the central lymph-channel of the vitreous, due often to

myopia. Dr. Shumway thought that the deposit in the canal of Cloquet of inflammatory products, in connection with a prenatal or postnatal choroiditis, as in the present case, was a theoretic possibility, although von Hippel says that no proof of such an origin in a case described as persistent hyaloid artery has ever been advanced. In the same connection Dr. Shumway exhibited histological preparations, showing the hyaloid artery in the human fetal eye at the twenty-second week, in which the artery was at its fullest development; and at the end of the eighth month, in which the artery had disappeared, except for a short outgrowth from the nerve, the central cavity of which was in direct connection with the central artery of the retina.

Dr. Harold G. Goldberg reported (by invitation) a case of *Retinal Glioma* in a child 2½ years old. The disease existed for 7 months before the parents would consent to enucleation, the orbit then being extensively involved. Histological examination showed a "glioma endophytum" entirely filling the vitreous chamber, dislocating the lens forward, the posterior capsule of which was ruptured and the lens substance invaded; "gliofibroma" involving the posterior portion of the sclera; complete replacement of normal nerve tissue by glioma elements; and invasion of the nerve-sheaths and orbit, and "rosette" formations.

Dr. H. F. Hansell related the *Subsequent History of a Case of Sympathectomy for Chronic Inflammatory Glaucoma*. The interesting and instructive feature of the case was that, notwithstanding the removal of the superior cervical ganglion on each side, the patient, a young man, had had subsequently at least two attacks of acute glaucoma attended with violent pain and complete blindness. Recovery of vision equal to that before the attacks followed the use of eserine and of paracentesis of the cornea. Dr. Hansell quoted the conclusions of several writers on the subject who had gathered the published accounts of results of the operation, but he could not assent to the reasons or arguments that had been brought forward for justifying the excision of the ganglion. The evidence of this one case in which the operation not only did not restore any part of the lost vision, but failed to prevent acute onsets of glaucoma, was a stronger argument against the procedure than all the reports made within a few weeks after operation, claiming that the operation was beneficial. He advocated no departure from the tried remedies, eserine and iridectomy, in hopeful cases, and preferred

enucleation for painful, sightless, glaucomatous eyes beyond the reach of eserin and iridectomy.

Dr. G. E. de Schweinitz described the history and ophthalmoscopic appearances of a case of *Thrombosis of the Upper Temporal Branch of the Superior Division of the Central Artery of the Retina* in a girl aged 15, who was examined two weeks after the first symptoms of this condition became manifest. The only etiological factor which could be discovered was a pronounced simple anemia. The lesions were these:

From the margin of the nerve head to a point 1 disc's diameter distant the upper temporal branch of the superior division of the central artery of the right eye was converted into a white cord in the center of which a faint red line, representing apparently a much diminished blood stream, could be detected. Beyond this point the occluded vessel was nearly hidden by a yellowish-white exudate, somewhat larger than the surface of the papilla and faintly tinged with pigment. Just beyond it there was a small flame-like hemorrhage, and another one above the superior temporal vein. The ramifications of the vessel beyond the area of exudate were much broken and interrupted. The surface of the disc, particularly its nasal margins, was cloudy with edema. At a number of places the retinal veins were somewhat compressed by overlying arteries, indicating increased density of the arterial wall. Central vision was 6/9 and the field of vision obliterated in its lower and inner quadrant; elsewhere it was normal.

After two months of treatment central vision rose to 6/5, but the field of vision remained unchanged. The edematous condition of the nerve head had disappeared, the occluded vessel in its entire distribution had been converted into a white cord, and the area of exudate had become absorbed, leaving a region of atrophy fringed with pigment, exposing the sclera crossed by flat choroidal vessels and resembling somewhat an extra-papillary coloboma.

Dr. de Schweinitz thought that the case could be explained by endarteritic changes beginning probably in the inner coat of the retinal vessels most manifest at some point, and that, inasmuch as the usual constitutional causes of such changes were not in evidence, it was possible only to say that they depended upon an undiscovered ancestral or personal nutritional disturbance. Further, the state of affairs could be explained by alteration in the blood pressure and the composition of the blood itself, or rather, by a high grade of simple anemia which in the presence of fatty degeneration of the

intima or other alteration in the vessel coat might induce thrombosis. There was a vague history of a faint blow upon the eye prior to the disturbance of vision, and this might be regarded as an exciting cause. The paper was illustrated with water colors by Miss Margaretta Washington.

Discussion.—Dr. Hansell referred to an instance of transient thrombosis of one of the main branches of the central artery in a young, well-nourished woman, whom he had examined with Dr. Thorington. The vessel beyond the plug appeared as a narrow white cord, in the midst of a sharply outlined area of marked edema of the retina, but with no hemorrhages. Before entering the hospital for treatment she went to her home, but upon her return a few hours later, it was found that the obstruction in the artery had disappeared, although the retinal edema continued. Dr. Zentmayer stated that he had recently seen the case, and at that time there existed in both eyes a slight haze of the retina, with dilatation of the superior retinal vessels, but contraction of those inferiorly in the affected eye. The girl gave a clear specific history.

WILLIAM M. SWEET,
Clerk of Section.

DETROIT OPHTHALMOLOGIC AND OTOLOGIC CLUB.

Report of the meeting of November 4, 1902, by Walter R. Parker, M. D., Secretary.

Dr. Frothingham reported *Three Cases of Tumor of the Eye*.

CASE 1.—W. F., age 2 years. It was suddenly discovered that the child could not see out of right eye. No pain or inflammation. The ophthalmoscopic examination showed the left eye normal. The right eye showed a tumor which seemed to come well forward and starting from the inner side. $T = + I$. Enucleation was advised and the operation was made on the following day. Examination after showed glioma. Patient was heard from two years later and there were no signs of further trouble.

CASE 2.—W. G. When first seen eye Vis. R. Eye = 18/15. L. Eye = Blind. There was a slight staphyloma and which was diagnosed as a tumor of the eye and enucleation advised. He returned five months later. There was a high degree of exophthalmus and the tumor could be felt in the orbit. On operating a large melanotic sarcoma was found in the orbit, extending back along the optic

nerve and filling the interior of the eye. There were no signs of the return of the growth eight months after its removal.

CASE 3.—L. C. First seen Feb. 21, 1900. There had been a growth on the outer side of the eye near the cornea, since birth, which began to increase in size about six years before Dr. Frothingham first saw her. An attempt had been made to remove it but it grew more rapidly. A diagnosis of sarcoma was made, but the vision was good (20/20 each eye) and she would not consent to enucleation. There was no movement of the tumor and there was not much hope of successfully removing it. At the operation it was found that the tumor extended through the sclera and into the choroid, also involving the margin of the cornea. As much as possible was removed and the surface was covered with healthy conjunctiva. It healed well and she was not seen again until June 19, 1900. There were no signs then of an increase in the growth, which was reported as a melanotic sarcoma, and the removal of the eye was advised. On March 3, 1902, she returned. The tumor had started to grow about four months before, while the vision had diminished to 20/200. Enucleation was done the next day. Three months after the operation the socket looked perfectly healthy.

The following is a copy of the report of the microscopical examination. (Pathological Report: April 12th, 1900. Melanotic, mixed cell sarcoma. The growth consists of variously shaped cells, spindle, round and branched. Pigment occurs in masses. The conjunctival epithelium has taken an hypertrophic growth in an irregular manner owing to the irritation of the neoplastic growth. This might easily be mistaken for an epithelioma. Some parts of the growth show signs of degeneration.)

Dr. Gilman presented a paper entitled *Intratympanic Injections of Pilocarpin in Chronic Catarrhal Deafness*, which was discussed by Drs. Conner, Thuner, Frothingham, Campbell and Parker.

Dr. Frothingham reported a case of *iritis following irideclomy for glaucoma* in which a single instillation of atropine was followed by relief of pain, and adhesions were avoided. A woman, aged 68 years. Right eye absolute glaucoma. Left eye beginning simple chronic glaucoma. No complications at time of operation. On fourth day iritis set in. The question was whether to allow adhesions to form or risk the atropine. Decided to use atropine, pupil dilated and was followed by no increase of tension. Now, four months after the operation, eye is quiet, vision and fields normal.

Dr. Gillman reported a case of *normal vision of an eye with*

a piece of steel embedded in its uveal tract nearly seven months, and spontaneous expulsion of the alien particle, in a man aged 39, who, on March 22, 1902, suffered a perforating wound of the right eyeball, at the sclero-corneal junction, caused by a flying splinter of steel. The track of the wound led through the iris towards the ciliary body. The small tip of a Hirschberg magnet was inserted into the perforation and two small bits of steel were extracted from the eye. After a few days the eye recovered with normal vision, and the man returned to work.

On November 16, 1902, or nearly seven months later, he again presented himself, stating that for the past few days he felt something rough in the right eye which prevented free movements of the globe. An examination of the optic revealed a dark mass pointing out from the site of the former wound. This object was removed with some difficulty with iris forceps, and proved to be a wedge-shaped splinter of steel, which had become oxidized from its protracted lodgment in the eye. The splinter weighed $\frac{1}{4}$ of a grain. After two days' rest the man was able to resume work with normal vision.

Dr. Campbell showed patient with suspected *sarcoma of the choroid*, and reported the following case:

W. A., aged 43, a farmer, first consulted me in July, 1902.

The clinical history which he gave was to the effect that three months previously he noted that his right eye between the cornea and the external canthus was red and swollen.

Since the condition was first noticed there had been no change as far as the patient could determine.

Examination revealed an eye entirely free from irritation excepting in the region indicated where an elevated red area could be seen, there was no pain nor tenderness on pressure.

The appearance was identical with that sometimes seen in cases of episcleritis excepting that this growth seemed firmer and more resilient to the pressure of a probe and was not sensitive.

In order to clear up the diagnosis between a neoplasm and an inflammatory deposit he was placed first on salicylate of soda and then upon iodide of potash and mercury to the physiologic effect of each drug. Absolutely no effect on the elevation could be made and surgical intervention was decided upon.

The tumor was carefully dissected out and the wound closed by three sutures through the conjunctiva. The specimen was sent for microscopical diagnosis to the Detroit Clinical Laboratory and

the report received was "Round celled sarcoma with an abundant blood supply."

In the event of a return of the growth the eyeball will be enucleated and the orbit exenterated.

Dr. Parker exhibited *monnt of Melano-sarcoma of the choroid* occurring in a patient aged 26 years. The tumor involved about half of the vitreous chamber.

Dr. Gillman exhibited *specimen of small melano-sarcoma of the choroid*. The tension in this case was subnormal until just before enucleation.

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

REPORT OF THE MEETING OF DECEMBER 9, 1902.

BY BROWN PUSEY, SECRETARY.

The President, Wm. H. Wilder, in the Chair.

Dr. Wm. A. Fisher read a paper on *One Hundred and Fifty Magnet Operations*. Paper in full on page 26.

Discussion of Dr. Fisher's report.

Dr. Montgomery spoke of having recently had a case in which a foreign body penetrated the eyeball. The foreign body entered the globe at the intersection of the internal rectus and it made its exit just internal to the optic disc. The point of exit could be seen with the ophthalmoscope. The patient was an iron worker and the chip that hit him was a piece from the metal that he was working on. A large magnet was used with a negative result. An x-ray picture located a foreign body behind the globe. He saw another case recently. One hour before the patient consulted Dr. Montgomery, while he was hammering on iron, a chip flew into the left eye. Dr. Montgomery used the large magnet but was unable to get the foreign body. Two hours later he took the patient to Dr. Fisher and his large magnet. Dr. Fisher, after repeated trials, was rewarded by the appearance of the splinter of iron, 1-6 of an inch, long, in the anterior chamber, and the foreign body was brought out through the wound of entrance.

Dr. Montgomery congratulated Dr. Fisher upon the success that he reports, and upon the skill with which he uses the Haab magnet.

Dr. Hale said that the sideroscope can be made a very trustworthy instrument. If it is set up properly, as he has seen it, the vibrations

or electrical current even of a modern city need not influence its accuracy. Much depends, too, upon the length of the illuminated scale and its distance from the instrument. If properly adjusted, the movements produced by vibrations or currents are by no means so large as to simulate those caused by a foreign body of iron or steel when approached to the instrument.

Two of Dr. Fisher's statements should not go unchallenged. Cosmetically a sightless eye destroyed by a foreign body is often not so good as an artificial eye, and for this reason alone many atrophic globes should be removed. Pathologically, the sightless eye is often destroyed by cyclitis, and we can never tell when this useless globe may set up a cyclitis or sympathetic ophthalmitis in the other eye; therefore in every case it is wise, surgically, to advise the removal of a globe that has lost its vision through a foreign body.

Dr. Gradle: Without much personal experience in the use of the Haab magnet he could not help noting the discrepancy between some of Dr. Fisher's statements and many reliable reports in literature. The diagnostic value of the magnet must be disputed. Very often it fails to indicate the presence of a foreign body, except perhaps by bringing it to view in an undesirable way. Dr. Fisher's unfavorable comments on the Hirschberg magnet are contrary to general experience, as illustrated, for instance, by the brilliant report by Hirschberg himself of his last 150 cases, many of which had been watched for years. From his statistics and several other reports of large series by others, it appears that the small magnet fails in less than one-third of the instances, preserves a harmless but sightless eye in one-third, and saves good sight in more than one-third of all cases. Dr. Fisher's statistics cannot be analyzed as no details are given. But while the small magnet will always retain its usefulness as the handier and more accessible instrument the giant magnet is no doubt a valuable addition for selected instances. The fear of infection by introducing the sterile tip of the small magnet through a clean incision is not supported by experience. Its real danger is subsequent retinal detachment due to injudicious ploughing of the vitreous.

Dr. Pusey said that at one period during his hospital apprenticeship he was located where there was a Haab magnet. At that time this magnet was one of two that existed in a great city and consequently it was used frequently. The result of its use usually was disappointment. This was shortly after the magnet was put

up at this hospital and there were several surgeons, among whom the cases were divided. One of the speakers this evening mentions the fact that in a case under his care he failed to get the foreign body, but that later Dr. Fisher succeeded. In a case under the care of Dr. Wescott and himself, which was taken to Dr. Fisher shortly after he began working with the Haab magnet, the foreign body was not gotten. In another case taken to him a few months ago Dr. Fisher got the foreign body from the vitreous cavity immediately. Based on these observations the idea suggests itself that maybe experience makes one skillful in the use of the Haab magnet. Certainly the way Dr. Fisher removed the foreign body in his and Dr. Wescott's last case was astonishing and he congratulated Dr. Fisher on his excellent work.

A Device for Prevention of Symblepharon in Extensive Burn of Conjunctiva.—By Dr. E. F. Snyderacker.—By the interposition of a lead plate between inner lid and bulbus crowding this plate into the cul de sac so as to put its folds on the stretch, placing another lead plate over the skin surface of the lid, so as to sandwich the lower lid between the plates, passing sutures through perforations in the plates, including also the whole thickness of the lid in the sutures, tying these sutures over outer plate, leaving ends of these sutures long, fastening gauze bandages to long ends of sutures, bringing bandages under the chin and over the head so as to evert and put the lower lid on the stretch and keeping in this position for about eleven days, in the meantime cauterizing such granulations as appeared, he was able in a case of lime burn of the conjunctiva, to prevent adhesions where under ordinary forms of treatment he was quite sure they would have occurred.

Discussion.—Dr. Colburn said that the method of treatment and the disc presented by Dr. Snyderacker are novel but not wholly new. He presented a block of tin form modeled after the artificial eye shell with a large corneal opening. The shield is so shaped that it does not allow pressure upon the sclera away from the cul de sac or upon the cornea. The corneal area being open permits of frequent irrigation without removing the shell. After the first twenty-four hours it is worn without discomfort and can be kept in place for as many days as seems necessary. His first patient wore the shell eighteen days with a good result. The burn was from lime and involved the upper and lower lids, the cornea and conjunctiva above and below. The corneal scar was not sufficient to prevent good vision and but slight contraction and no symblepharon resulted

from the conjunctival burn. One patient on whom the shell was used would not undergo the first twenty-four hours of discomfort. Aside from the patient just mentioned, he has applied this shell to three patients with satisfactory results.

Dr. Pinckard said that it has been his experience that no mechanical device does good in cases of forming symblepharon. He has tried numerous forms of plates but is satisfied that the contraction is just as great with them as without them. In plastic work for the cure of symblepharon he still is in doubt as to their value. In some cases he has been convinced that they increased the amount of adhering surface of the graft; in others he is sure they were of no help.

Dr. Nils Remmen said that he thinks that twenty-four hours after such a burn with lime is too early to introduce plates for the prevention of symblepharon. It is impossible that soon to say how much tissue is destroyed. By waiting longer some such burns might prove to be only superficial and give rise to little or no further trouble and then, of course, we should not need to annoy the patient by such an operation.

Dr. Hotz: If the destruction of the conjunctiva does not reach down to the angle of the fornix, adhesions between the opposing surfaces can be prevented by the interposition of a small lead plate shaped somewhat like a half moon. Along its straight edge there are a number of small holes for the passage of threads. After the plate is inserted between the lower lid and eyeball, sutures are passed through the holes in the plate and the lid margin and tied; these sutures hold the plate in place, and no bandage is necessary. If the destruction involved the whole fornix I should treat it in the same way until all eschars are eliminated and a clean granulating wound is presented. Then I should spread over the lid surface, including the cul de sac, a Thiersch graft held in place by the reinsertion of the lead plate. A separate Thiersch graft is taken to cover the wound surface of the eyeball. If the lead plate is of the right size and shape it secures absolute immobility of the lid and ball, keeps the grafts in perfect contact with the wound surfaces and makes a displacement positively impossible. No bandage is necessary.

Vossius' Type of Interstitial Keratitis and Keratitis Desciformis with Exhibition of Patients.—By Dr. E. F. Snyderacker.—Dr. Snyderacker said that three months ago he was treating, at the same time,

two cases which clinically presented a striking similarity, but which etiologically and pathologically were entirely distinct.

One case was that of a girl eight years of age with saddle shaped nose, scars at the angles of the mouth, notched teeth and defective hearing—a case of hereditary syphilis. In both eyes there was an intense circumcorneal injection, marked photophobia and impairment of vision. The cornea in both eyes was steamy, from the limbus countless bloodvessels were making their way into the deeper layers of the cornea, about half way between the limbus and the middle of the cornea there was a gray, slightly yellowish ring, complete in the right eye, about $\frac{3}{4}$ complete in the left eye; this ring was lying in the deeper layers of the cornea and with the corneal loupe could be seen to consist of short lines of infiltration interspersed throughout with dots.

At the end of three or four weeks the rings began to clear and diminish in size, the cornea cleared from the periphery, till now only a few diffuse blotches remain in the center of each cornea. The case was the Vossius or annular type of interstitial keratitis.

The other case is that of a five year old boy. About three months ago his father picked a foreign body off the cornea with a toothpick. Shortly afterwards the eye became injected and sensitive to light. The patient consulted Dr. Snyderaker about three weeks after the beginning of the trouble.

The child kept the eye closed, there was a moderate amount of conjunctival and circumcorneal injection, the cornea was anaesthetic near the center of the cornea and in its deeper layers was a gray, slightly bluish ring and near the center of this ring an almost chalky white, opaque spot, both spot and ring under the loupe could be seen to consist of an aggregation of minute dots.

The periphery of the ring was sharply circumscribed, no blood vessels were present in the cornea, no ulcerations were present, the iris was not involved, the fundus was normal.

Since that time the case has run what might be called a sub-acute course. The eye would be perfectly quiet for a time, then there would be a slight exacerbation accompanied by a moderate amount of pain and photophobia.

The opacity became somewhat denser till it assumed the appearance of a disc rather than that of a ring. About four weeks ago a very interesting change in the condition took place. From the small opaque spot in the center numerous minute chalky white dots

seemed to emanate, arranging themselves in the form of a ring inside of the outer ring.

This inner ring is much whiter and denser than the outer one, but under the loupe it can be seen to consist of minute, chalky white dots. There are no ulcerations present and the dots lie in the deeper layers of the cornea. Owing to the clinical resemblance between this disease and the annular type of interstitial keratitis, many authors and especially Pfister and Guenert have confused the two, although their etiology and clinical course are so different.

About a year and a half ago Fuchs published a paper in the "*Klinische Monatsblätter*" accurately describing the disease, sharply differentiating it from the annular type of interstitial keratitis, identifying it as the abscessus siccus of the older writers, rechristening it by the name of "keratitis disciformis," placing it about midway between dendritic keratitis, on the one hand, and ulcus serpens on the other.

A Report of Three Cases of Infantile Cataract.—By Dr. J. Elliott Colburn.—Case 1. Male, aged ten years. Congenital syphilis. Inter-corneal opacities. Irides adherent to lower half of capsules. Broad anterior opacities in both lenses. Fundi not visible.

Following two months' constitutional treatment a discission was made on the right eye. The needle was passed to the side of the opaque area as the latter was too dense to admit it. Absorption was complete at the end of six weeks, excepting the central white disk which partially blocked the pupil. Later the capsule which obscured vision was perforated along side the opaque disk and good vision was obtained with correcting lens.

Eighteen months later the left eye was operated on. The needle was introduced to the nasal side of the pupil with its back toward the densely opaque disk. With gentle pressure the disk was moved back nearly out of the pupillary space where it now remains within the capsule but allowing a free pupil. Slight reaction and no pain followed the operations and 20/40 vision was secured with correction.

Case. 2. Male, aged seven years. Congenital syphilis. Partially blind from birth. Star shaped opacities in both lenses. Left eye, opacity obscured by semi-opaque cornea. Right cornea clear. Posterior synechiae. Light projection good.

Right eye was incised as for mature cataract, the knife passing through the iris and lens. The iris and capsule were dragged out, excised and all soft lens matter coaxed out. Vision three months

later equalled 20/60 and evidently would improve with further clearing of the cornea.

Case 3. Female, aged four and a half years, poorly nourished. Congenital cataracts of both eyes. No history of syphilis. Eyes small and deeply set. Oscillating nystagmus. Iris sensitive. Light projection good. Lens uniformly opaque and opalescent but not dense. Discission was performed on the right eye. As the needle was withdrawn it was turned slightly and the fluid flowed out of the wound freely and before the eye was bandaged there was but a slight trace of the lens substance in the anterior chamber and the pupil was free and almost normally black. No opaque nucleus could be seen. No reaction. Left eye was operated in the same manner with like results.

Eight weeks later correcting glasses were given and she was able to see small objects and the eyes began to act co-ordinately.

The points of interest in this case were the extreme fluidity of the lens and the total absence of any opaque nuclear matter.

Discussion.—Dr. Gradle mentioned his experience in a unique case of congenital cataract with unusual thickening of the anterior capsule. In a puny baby of eight months with diffuse congenital opacity of both lenses the capsule was found so tough that the discission needle could not pierce its central portion. In subsequent discissions a Knapp's knife was introduced through the extreme periphery of the capsule, but no wound could be made large enough to allow the lens substance to protrude into the anterior chamber. Nevertheless the lenses became partly absorbed without the least irritative reaction. But the capsular opacity did not change. Finally he extracted the thickened capsules with iris forceps through a linear incision and obtained perfectly black pupils. Although the ophthalmoscope showed a normal fundus the apparently bright baby was very slow to learn the use of its eyes.

The trustees of Bellevue and allied hospitals are preparing to establish a clinic for the treatment of trachoma, which is prevalent among the school children of New York city. The first floor and part of the second of the old building of the Gouverneur Hospital have been fitted up for the treatment of these cases. There will be the usual waiting room, operating room, recovery room, and a ward for each of the sexes, in which the patients may be kept for from twelve to twenty-four hours.

NOTES AND NEWS.

ITEMS FOR THIS DEPARTMENT SHOULD BE SENT TO
DR. BROWN PUSEY, 31 WASHINGTON ST., CHICAGO.

Dr. Adam Bednarski has been recognized as privatdocent of ophthalmology at Lemberg.

Dr. Solomon Klein, of Vienna, has been granted the rank and title of Professor of Ophthalmology.

Dr. Naito has been appointed to the hospital position in Tokio made vacant by the death of Dr. T. Inouye.

Dr. Nathaniel Feuer, professor of ophthalmology in the University of Budapest, died November 25th, 1902, aged 58 years.

James Bankart, senior surgeon to the West of England Eye Infirmary, died in Exeter, England, October 31st, aged 68.

The late Alexander C. Hutchinson, of New Orleans, bequeathed \$20,000 to the Eye, Ear, Nose and Throat Hospital of that city.

Dr. Frank Van Fleet, of New York City, has just retired from the presidency of the Medical Society of the County of New York.

Among other charitable bequests left by the late William Clark, of Newark, N. J., is \$6,000 to the Newark Eye and Ear Infirmary.

The Royal Westminster Ophthalmic Hospital, London, and the Bath Eye Infirmary were each bequeathed \$2,500 by the will of Mr. B. Packer.

Drs. Allen T. Haight, E. F. Snyderacker, W. O. Nance, and Clark W. Hawley, have been appointed ophthalmologists to Cook County Hospital.

Since September 18th, 1902, 6,347 children have been excluded from attending the schools of Brooklyn on account of disease. Of this number 1,979 were excluded because of eye diseases.

Dr. E. J. Bissell and Dr. Wheelock Rider, of Rochester, and Drs. F. Park Lewis and Lucien Howe, of Buffalo, have been appointed ophthalmologists to the Batavia Hospital Association.

Dr. Julian J. Chisolm, who founded the hospital in 1877, and for twenty-two years was its Executive Surgeon, retired in 1899. Since his retirement the medical management has been conducted by this Executive Committee.

During the past year the Massachusetts Charitable Eye and Ear Infirmary received by bequest \$10,000 from the late Anson J. White, \$3,000 from the late Mary Louise Ruggles and \$2,000 from the late Mrs. Nancy E. Rust.

In a report to the Ophthalmological Society, Dr. Trousseau states that the number of blind in France reaches 31,966, a proportion of 8 in 10,000. This proportion is considerably in excess of that in Denmark, Switzerland, Austria, and above all, Holland, where it is exactly 4.46 in 10,000.

A jury at Elizabethtown, N. J., has rendered a verdict for \$6,000 damages against David Flemming, who, while playing on the Lake Placid links last summer, threw his golf stick at his caddy, causing the loss of the sight of one of the boy's eyes. The caddy brought suit for \$10,000.

At the annual meeting of the Chicago Ophthalmological and Otological Society held Tuesday evening, January 13th, Dr. Chas. A. Beard was elected president of the Society for the coming year; Dr. H. B. Young, of Burlington, Iowa, was made vice-president and Dr. Brown Pusey was reelected secretary and treasurer.

In a list of Lord Lister's contributions to medical and scientific literature prepared by Prof. Chiene, of Edinburgh, and published in the Lister Jubilee number of the British Medical Journal (December 13, 1902), the first article recorded is, Observations on the Contractile Tissue of the Iris, which was published in the Quart. Journ. Micro. Soc., London, 1853.

During his recent visit to Montreal a dinner was given at the Windsor Hotel to Dr. Casey Wood. Among those present were Dr. Francis W. Campbell Dean and other professors and lecturers of Bishop's College. Dr. Roddick, Dean of the McGill Medical Faculty, Dr. H. S. Birkett, President of the Medico-Chirurgical Society, Sir Wm. Hingston and other prominent physicians.

Colors in the Treatment of the Insane.—A series of experiments as to the effects of various colors on the insane, now being tried on Ward's Island, are said to have developed some remarkable results. It is reported that a number of patients have been cured. Although the treatment is new to alienists, it is believed that it is one that will prove very successful.—*Amer. Med.*, Dec. 13, 1902.

At the annual meeting of the Board of Governors of the Presbyterian Eye, Ear and Throat Charity Hospital, Baltimore, the Medical Executive Committee, which has managed the medical affairs of the institution for the last four years, consisting of Drs. Herbert Harlan, Hiram Woods and Francis M. Chisolm, was reappointed for this year with Dr. Herbert Harlan as Surgeon-in-Chief.

The Ophthalmic Department of St. Luke's Hospital, Chicago.—A well equipped ophthalmic and aural department has been established in St. Luke's Hospital, Chicago, where every facility is given for the care of eye and ear cases. Nurses specially trained in these branches of surgery are in charge of the patients. An eye and ear outdoor department has recently been opened where poor patients are seen daily.

The opticians of the State of New York propose to make another effort to induce the Legislature to create a board of examiners in optometry, without a license from which it shall be illegal to practice optometry. This is defined as "the employment of subjective and objective mechanical means to determine the accommodative and refractive states of the eye, and the scope of its functions in general, or the act of adapting glasses to the eye by using such skilled means as will determine their choice." Physicians duly licensed to practice medicine in the State are to be exempt from the provisions of the proposed act. Others who practice optometry without a license will be adjudged guilty of a misdemeanor.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XII. No. 2. CHICAGO, FEBRUARY, 1903. NEW SERIES.

ORIGINAL ARTICLES.

THE VALUE OF SALICYLATE OF SODIUM IN LARGE DOSES IN INFLAMMATORY EYE DISEASES.

BY DR. H. GRADLE.
CHICAGO.

The valuable report by Dr. Gifford in the December number of the RECORD induces me to publish my experience with the same drug. It agrees, on the whole, with that of Gifford, but like him I have reason to believe that the value of the agent is not as much appreciated as it deserves. While nearly all text-books recommend salicylates in episcleritis, iritis, and a few other inflammations, there is, as a rule, no definite statement what and how much the less experienced observer can expect from its use. Reference, however, should be made to very definite reports by Chisholm in 1880. (Arch. of Ophth. page 166) and Friedenwald in 1895 (Maryland Medical Journal, Dec. 7), both of whom claim more for its abortive influence in iritis than I have been able to confirm.

In dealing with diseases the course of which is subject to more or less fluctuation, and the duration of which is not quite constant, an influence can be claimed for a special agent only if the latter changes with tolerable regularity the clinical course within a short time compared with the ordinary length of the disease. When the drug must be given for a long time its influence is also strikingly shown if interruption in its use coincides with protraction, whereas its renewed administration again leads to improvement. All this applies to salicylate of sodium properly given. But unfortunately there are occasional unaccountable exceptions to its control of the diseases which it usually influences. On the other hand I have seen

a few instances (the case of keratitis quoted, and various cases of persistent cyclitis and sympathetic disease) which, as judged by their past history, would probably never have ended in recovery without salicylate.

Like Gifford I must emphasize the necessity for large doses. Small quantities do not act proportionately less, but are simply inert. An adult requires twenty grains at least 4 to 5 times a day, while if 25 grains can be tolerated 5 to 6 times a more decisive influence is quickly obtained. When such large doses produce no effect upon the disease within 48 to 60 hours I have found it useless to continue the drug. By using tablets (5 gr.), coated if desired, the stomach is almost never irritated. The limit to its increasing or continued use is generally set by tinnitus or a feeling of confusion. I have learned to continue it in sensitive subjects intermittently, omitting the morning doses and increasing in the afternoon. I have once seen a mild delirium produced by 12 gr. doses in an 8-year-old child. In rare instances annoying, but not dangerous, prostration prevents its continuance. In urgent instances the patient may have to submit to these various disturbances in order to get the benefit of the agent.

My experience can be summarized as follows:

Episcleritis varies very much in severity and duration. In the RECORD of October, 1902, I have described a class of cases which would commonly pass as episcleritis, under the name of *subconjunctival inflammation*. Both in this form as well as in typical episcleritis I have only given salicylates after the customary local treatment had proven insufficient. A few times the disease disappeared within 48 hours; as a rule it took one to two weeks, although improvement began promptly. In less than one-third of the cases there was no appreciable influence. A striking instance was that of a 15 year old girl who had a very large episcleritic swelling due to an injury with a pin three weeks previously. For two weeks she took salicylates insufficiently, not exceeding 60 grains per day. As the patch became more inflamed and tender I insisted on larger doses. By mistake she took 150 grains that afternoon, and was considerably prostrated. But on returning two days later there was a striking improvement. By persisting in the use of about 100 grains from noon till night she got well in three weeks.

In deep *scleritis*, which I do not see often, salicylate has always proven of influence temporarily. But, with a few exceptions, it did not lead to a speedy cure, and did not even prevent occasional

exacerbations. Yet when the patients stopped it they did not get along as well. ,

The drug has a striking effect in the minute *superficial corneal infiltrates*, which sometimes persist tantalizingly after small traumas, (cinders). Of course I have only used it after first employing a shade, atropin, yellow ointment, etc., with insufficient success. The remarkable influence of large doses of salicylate upon rebellious manifestations of *phlyctenular keratitis* I have described at the meeting of the Am. Med. Ass. in 1900. My experience since has confirmed its utility, but also its occasional failure in a small minority of instances. I find it necessary to give at least $7\frac{1}{2}$ grains per dose in children of about 4 years of age.

In *syphilitic interstitial keratitis* I have not seen any results.

In *non-syphilitic keratitis*, varying from superficial to deep interstitial forms, I have used it extensively, but mostly with negative results. Perhaps the most pronounced benefits were seen in the diffuse keratitis of scrofulous children, especially in those who had had the history of previous phlyctenular attacks. A few instances of keratitis in gouty subjects were rapidly influenced and cured. A striking illustration of salicylic influence on a rare type of corneal disease is the following, which resembles Trousseau's description of keratitis due to gouty deposits:

Nodular sclero-keratitis. Miss G., 45 years. Hitherto healthy. No history of syphilis or gout. Since $11\frac{1}{2}$ years nearly steady soreness and redness of right eye with fluctuations and sometimes severe pain. Treatment by competent men without much, if any, result. L. eye normal; slightly myopic. R. eye moderate diffuse ciliary injection, and irritability. On temporal side a small elevated vascular nodule in the sclera, running into the cornea. In the substance of the cornea four slightly yellowish gray discrete nodules, of about pin-head size, supplied with blood vessels. Entire cornea hazy, but surface normal. Pupil fairly atropinized. Scarcely any ophthalmoscopic reflex. V. = fingers at 15 feet. Field normal.

After indifferent local treatment for 2 days (atropin, yellow ointment, practically the same as previous treatment) large doses of salicylates brought on a subjective as well as objective improvement within three days. She left the city on the twelfth day with the nodules in cornea and sclera very much reduced in size, and the eye nearly pale. Five years later, on returning for other reasons, I learned that the continuance of salicylate had completely quieted the eye within a few weeks, and that it had remained quiet

during all this time. The cornea, however, had remained uniformly clouded and the sight had not improved.

In ordinary typical *iritis* the drug has been a disappointment to me. It benefits many patients by reducing the severity of the symptoms and probably hastening the course, no matter what the etiology. But I have not been able to abort the disease in a specific manner, even in rheumatic subjects. The promptest effect I have seen in diabetic *iritis*, the duration of which is very variable. In a few atypical chronic or relapsing instances of inflammatory *iritis*, of unknown origin, I have, however, seen rapid recovery.

In *typical*, so-called *spontaneous cyclitis* I have only had negative results. But in atypical forms of *cyclitis*, those of uncertain duration and usually of protracted course, salicylate has an almost specific influence. This applies, for instance, to *cyclitis* secondary to and persisting after corneal suppuration, and the inflammation of degenerated eyes with old retinal detachment. Especial satisfaction can be obtained in traumatic *cyclitis*. Too much must not be expected. A plastic *cyclitis* with rapid malignant course can scarcely be influenced. But in the inflammation following injuries, with diffuse vitreous opacity, I have so often seen a speedy improvement and recovery that I cannot doubt the remarkable control of the drug, although each individual case is not an absolute proof, on account of the uncertainty of the prognosis. Like Gifford, I have within the past year used salicylate as a prophylactic after cataract operations. Whenever the symptoms on the third or fourth day exceeded the ordinary reaction to the operative traumatism I have found that salicylate will keep the inflammation in check, so that the healing, while more protracted than in perfectly normal instances, was not disturbed by any violent *cyclitis*. My experience, however, has not been large. In *cyclitis* of a mild degree, but persisting long after traumatism, it is possible to recognize more definitely the value of the agent. A good illustration is the following:

Mr. J. had a steel chip extracted from the vitreous by the late Dr. E. W. Smith, in January, 1891. The wounded lens became absorbed but the eye was never perfectly quiet. In January, 1892, a small iridectomy was done since the tough membranous cataract could not be satisfactorily dealt with. Four months later he came under my care with the complaint that the eye did not stay pale, but became blood-shot and irritable, and often very painful. I found

the R. eye with marked ciliary injection, especially downward, corresponding to the site of a couple of minute corneal infiltrates. T — 2. Cornea otherwise clear. Pupil dilatable, but partially adherent. A small coloboma nearly closed. Dense secondary cataract. V. = fingers at one foot, with perfect localization. Within three days' use of salicylate the eye began to quiet. In three and a half weeks it had entirely lost its injection and irritability, which had persisted a little longer than the minute corneal infiltrates above referred to. During the following month there were again a few spells of transient irritability. The salicylate, however, was continued for several weeks after apparent perfect recovery. One year later he returned with the history of an eye perfectly quiet in spite of exacting mechanical work. Since atropin, rest and general hygienic management had all been properly directed by his previous attendant, the permanent recovery could only be attributed to the salicylate of sodium.

Sympathetic inflammation is very rare in my observation. One can not tell whether salicylate of sodium can help to prevent it, but I have at least used it with that hope, in all instances in which it seemed permissible to attempt to save the injured eye. I have seen at least three instances in which the sympathetically affected eye, previously hopelessly damaged as to sight, became quiet promptly after long suffering. An exceptionally lucky result which I can only attribute to this treatment is the following:

Traumatic irido-cyclitis with sympathetic irido-cyclitis of other eye cured. (Case of Dr. D. Sallinger, with whom I saw the man in consultation, and to whose courtesy I owe these notes.) R. R., age 43, struck by bar of iron early in November, 1891. After 48 hours of pain the eye felt natural and he resumed work. Four weeks later sudden severe pain and blindness. The following day, December 6th, he applied for treatment.

R. eye normal. V. 20/20; L. eye T —, tender, intense ciliary injection. Large prolapse of iris at upper inner corneal margin. Cornea clear. Large hypopyon. Pupil small and adherent, yielding poorly to atropin. V

Since a fair recovery was not improbable, and the history of the (secondary) infection only dated back thirty-six hours, the patient's desire to save the eye was acceded to with some reserve. Atropin, hot applications, darkness, mercurial inunction, and salicylate (100 grs. per day and upward) were ordered. The hypopyon diminished

within 24 hours, and was gone within two weeks, revealing now some punctate deposits. The pupil now was fairly wide, and the vitreous opacities were clearing. At the end of the third week. V. was 10/40, the eye nearly pale but slightly irritable. The iris prolapse was completely cicatrized.

On January 20th (the sixth week after the beginning of the cyclitis) V. had reached 10/30: the eye was practically pale though slightly irritable: the punctate deposits almost gone, the vitreous nearly clear: the fundus normal. But that day the other (right) eye had been obscured transiently. Yet examination showed it normal in every respect. The following day sudden outbreak of severe irido-cyclitis in the right eye, the seriousness of which was shown by the extensive deposits on the posterior surface of the cornea and the anterior capsule, as well as the innumerable fine synechiae. Pupil very irresponsive to atropin and V. reduced to 20/100. The primary eye had not changed.

The treatment which had been relaxed during the last two weeks was reinforced. The symptoms did not increase in intensity beyond a slightly augmented vitreous opacity. After a few days the inflammation began to subside. In about three weeks the second eye had become pale as well as the first one. But for about five weeks longer ciliary irritability reappeared whenever the energetic use of atropin was relaxed. Gradually all punctate deposits disappeared. When all treatment was suspended in April V. was R. eye = 20/20; L. eye = 20/20, minus. No relapse to date.

What has been recently described as *uveitis* consists partly of cases of self-limited duration which I have classified some years ago (*Annals of Ophth.*, Jan., 1893) as central transient circumscribed "chorio-retinitis." Salicylate has no influence upon this form. But in uveitis of a chronic character, of indefinite duration, the drug has a marked control over the intensity of the symptoms. Still I do not know that I have ever cured such a patient permanently.

In acute inflammations of the retina, or of the optic nerve, of unknown origin, I have never seen any results from salicylate. The same I must affirm of retro-bulbar neuritis, which in my observation has always run a self-limited course, ending in partial or complete recovery of sight.

A very prompt influence has been observed in the rare instances of non-traumatic and non-suppurative *tenonitis* which I have met with.

PANOPTHALMITIS FROM INFECTION WITH THE MICROCOCCUS LANCEOLATUS WITHOUT A PER- FORATING WOUND OF THE EYEBALL.

BY JOHN E. WEEKS, M. D.,

NEW YORK.

(Illustrated.)

William Sodder, aged 17 years, came to the New York Eye and Ear Infirmary on November 29, 1902. He complained of pain in the right eye and loss of vision. The pain had first been experienced three days previously and almost simultaneously vision began to diminish. At the time when he presented himself at the hospital the vision in the right eye was *nil*. The ocular and palpebral conjunctivae were slightly congested; lachrymation was profuse, and a very small amount of muco-pus was present in the conjunctival sac; the cornea was clear; the anterior chamber more shallow than normal; the pupil of moderate size; the iris of a yellowish tone as compared with the iris of the fellow eye; the lens transparent; a yellowish reflex was observed which was uniform throughout the pupillary area.

The patient complained of pain in the side of the head corresponding to the affected eye. The appearances were those of plastic choroiditis, and, recognizing the fact that immediate treatment was urgent, I admitted the patient into the infirmary and ordered hot bathing and atropine locally, and small, frequently repeated doses of calomel internally.

The temperature was 99.5° F. and it remained at this point until December 5th when it reached 100° F. The process in the interior of the eye advanced steadily and on December 5th there was considerable chemosis; the anterior chamber was filled with yellow exudate.

On December 6th, recognizing the fact that a condition of panophthalmitis existed and that it was impossible to save the eyeball, I performed the operation of exenteration, washing the cavity of the emptied sclera with a hot bichloride solution, 1-2000. The cavity was then packed with iodoform gauze and a compress bandage was applied. The pain and temperature immediately subsided and the patient obtained complete relief. The packing was changed every forty-eight hours until at the end of the tenth day granulation tissue had appeared and the packing was discontinued.

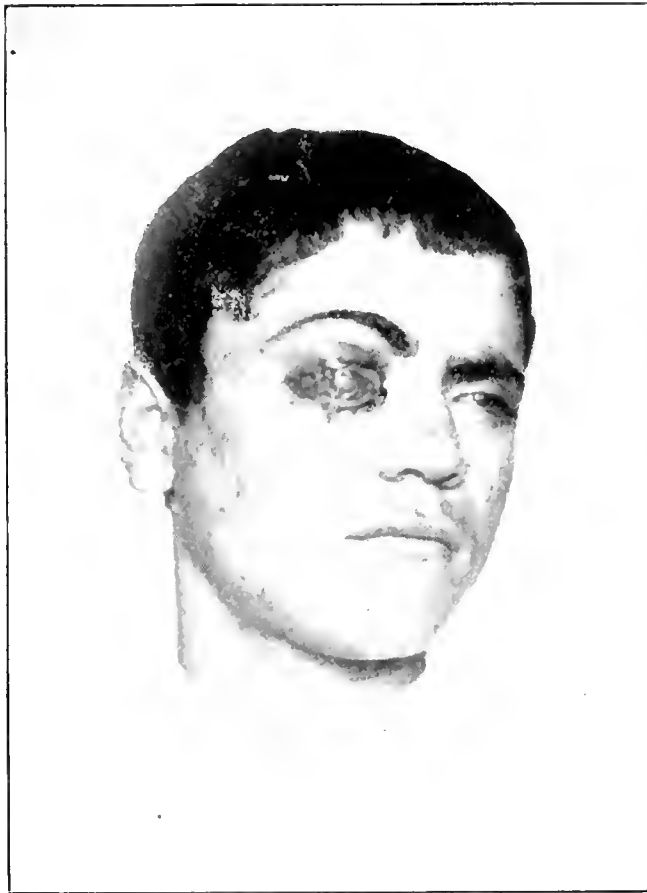
The conjunctiva had become so chemotic before the operation

was performed that a portion of it protruded between the margins of the lids. After exenteration this receded to some extent, but the hypertrophied conjunctival tissue was such that a permanent protrusion resulted, necessitating an operation for its removal, which was done January 13th. On dissecting up the conjunctiva the newly-formed tissue was found to be quite dense and tough. This was excised and was followed by satisfactory healing.

Microscopical Examination by Dr. Geo. S. Dixon.—"Smears were made from the tissue submitted in the case of Wm. Sodder. Diplococci were found, some with a faint capsule, and a few chain forms. Cultivations on blood-serum showed a transparent, slightly elevated growth at the end of twenty hours. Dried and stained smears of the cultivated germ showed the diplococcus lanceolatus. Examined in water the cultivation showed diplococci singly, in pairs and moderately long chains. The single cocci and a few of the chains were motile to a moderate degree, the same exhibiting a Brownian movement rather than true motility. When added to water tinged with an aqueous solution of methyl violet, motility ceased.

December 16th the right eye of a white rabbit was inoculated with an emulsion of the third generation. On the 17th there was considerable reaction. The conjunctiva was red and swollen. The edges of the lids were covered with pus and the anterior chamber was cloudy. On the 18th this condition was exaggerated and hypopyon was present. On the 19th the eye was enucleated and agar tubes inoculated. The same micro-organisms were obtained, but the growth was scanty and slid down into the water of condensation. The third generation was inert. Diagnosis, micrococcus lanceolatus."

In this case there was an indefinite history of a blow on the eyes which was received from five to six days before the patient presented himself at the infirmary, but a close inspection of the globe and of the conjunctiva showed no abrasion whatever and at the time of examining the patient at the dispensary the young man did not remember having received an injury to the eye. There was no appearance of disease of the nasal passages or nasopharynx, no pneumonia, or la grippe. The infection in this case apparently proceeded from within, but the focus from which the micro-organisms were derived was undiscoverable. The case seems to me to be one of extreme interest. It shows the possibility of infection from within in cases of slight contusion which probably reduce the vitality of the tissues, also the possibility of the entrance of micro-organisms into the circulation through lesions too small to be visible.



Panophthalmitis Due to the *Micrococcus Lanceolatus*. Infection Without Perforating Injury.

THE PHYSICAL ASPECTS OF A THEORY OF COLOR VISION.

BY F. W. EDRIDGE-GREEN, M. D., F. R. C. S.

The view which I wish to bring forward is that each optic nerve fibre is able to convey impulses corresponding to all kinds of light; that is to say, a very similar condition exists in the impulses which are transmitted along the optic nerve to that which is accepted for waves of light previous to their entering the eye. The limitation of the number of color sensations was thought to be necessary because it seemed physically impossible that a single fibre of the optic nerve could convey all waves of light. The facts of color vision can only be satisfactorily explained on the assumption that each optic nerve fibre does convey impulses corresponding to all waves of light. It occurred to me that if there were a transforming apparatus in the eye we could explain the facts. The telephone shows how this may be accomplished in the case of sound. I saw that the retina was constructed in a manner theoretically perfect from this point of view. The percipient layer of the retina is made up of two kinds of elements, the rods and the cones. The portion of the retina corresponding to the central portion of the field of vision contains only cones. External to this spot the cones are arranged with one or more rings of rods round them, the single ring being round those cones which are nearest to the central portion. In the rods there is a rose-colored substance, the visual purple, which is very sensitive to light. This photo-chemical substance is found exclusively in the rods. I assumed that light falling upon the eye liberated the visual purple from the rods, just as heat would an ointment, and a photograph is formed. The decomposition of the visual purple by light chemically stimulates the ends of the cones, and a visual impulse is set up which is conveyed through the optic nerve fibres to the brain. I have examined the retinas of several monkeys after they had been kept in a dark room, and found that the visual purple was to be seen in the yellow spot, but situated between, and not in, the cones. This view gives a reason for a great many facts which were previously inexplicable. For instance, a bright light may fall upon the fovea (the center of the yellow spot) without producing any sensation, and a perceptible interval elapses before we are able to see with the yellow spot, after the remainder of the retina, the fovea being the last point to convey a sensation of light. The first fact we should expect, the cones being insensitive to light:

the second corresponds to the diffusion into the yellow spot of the visual purple. All the facts of color mixing, contrast, and after-images can be explained by the hypothesis that the visual purple is the visual substance. A positive rose-colored after-image can be obtained after white light or any spectral color. The ordinary explanation of this, namely, that the action of the hypothetical red and violet fibres persists longer than those for green, cannot be true, because it is exceedingly difficult to obtain this after-image after spectral red, and very easy to see it after green. It would be against the whole principle of the theory that the red fibres should be excited most efficiently by green. But if we assume that the visual purple is the visual substance, then we have an easy explanation of the facts.

The fibres of the optic nerve pass to the visual center. I have assumed that the visual center transmits to the mind impressions of white light, and that by it objects are seen monochromatically, as in a photograph. The visual center is, therefore, acted upon by impulses caused by all rays of light, the color-perceiving center being concerned with the quality of the impulse within the power of perceiving differences possessed by that center, or portions of that center.

I will now apply this theory to color-blindness, and it will be seen that it gives a simple explanation of the facts.

Cases of color-blindness may be divided into two classes, which are quite separate and distinct from each other, though both may be present in the same person. In the first class there is light as well as color loss. In the second class the perception of light is the same as the normal sighted, but there is a defect in the perception of color. In the first class certain rays are either not perceived at all or very imperfectly. Both these classes are represented by analogous conditions in the perception of sounds. The first class of the color-blind is represented by those who are unable to hear very high or very low notes. The second class of the color-blind is represented by those who possess what is commonly called a defective musical ear. Color-blind individuals belonging to this class can be arranged in a series. At one end of this series are the normal sighted, and at the other the totally color-blind. The colors appear at the points of greatest difference, and I have classified the color-blind in accordance with the number of colors which they see in the spectrum. If the normal sighted be designated hexachromic, those who see five colors may be called pentachromic; those who see four, tetrachromic;

those who see three, trichromic; those who see two, dichromic; and the totally color-blind, monochromic. There are many degrees included in the dichromic class. There may or may not be a neutral band, and this is widest in those cases approaching most nearly to total color-blindness. I have recorded a case of a patient who was color-blind with one eye. It is an interesting fact that for form vision the color-blind eye was much the better of the two, and he could recognize fine lines in the spectrum with this eye which were not visible to the other. He saw the two ends of the spectrum tinged with color and the remainder gray. It will be noticed that his color sensations were limited to the extreme red and the extreme violet, namely, those colors which present the greatest physical contrast to each other. Neither the red nor the violet appeared of the nature of a primary color, but gave the impression that they were largely diluted with grey. A theory of color vision must account for a case of this kind and also for the other varieties and degrees of color-blindness. The trichromic are a very important class, and any theory must account for the fact that they see yellow as red-green and blue as violet-green. As we should theoretically expect, when there is shortening of the spectrum the centers of the colors are moved towards the unshortened side.

I will conclude by showing how this theory will explain the trichromatism of normal color vision. It also explains why certain persons see spectral yellow as red-green and spectral blue as green-violet. In past ages all saw the rainbow made up of only three colors, red, green, and violet. When a new color appeared between the red and green (yellow) it is obvious that a mixture of red and green would give rise, not to red-green, but to the color which had replaced it, namely, yellow.

REPORT OF TWO CASES OF CONGENITAL ANOMALIES OF THE EYES, ILLUSTRATING THE TRANSMIS- SION OF SUCH DEFECTS FROM MOTHER TO DAUGHTER.*

BY WM. CAMPBELL POSEY, M. D.

Professor of Ophthalmology in the Philadelphia Polyclinic; Surgeon, Wills Eye Hospital.

Case 1. Mrs. K. J., 57 years old, came to my service at the Howard Hospital in April last, for improvement of vision and relief from asthenopic symptoms. Inspection revealed typical coloboma

* Read before the Ophthalmological Section of the College of Physicians, Philadelphia, November 18, 1902.

of the iris in both eyes. As shown by the accompanying sketch, the apex of the coloboma in each eye was down and in, about 10° from the vertical meridian. The coloboma was not perfect in either eye, the ring-like structure of the iris being completed by a narrow rim of tissue between the limbus and the pupillary margin. There were curious wart-like growths on the upper and lower lids of the right eye at the outer canthus, but these were probably merely coincidental and without significance in connection with the changes in the eyeball. The cornea were ovoid in each eye, the axes corresponding to that of the pupils.

In harmony with the defects in the iris, the ophthalmoscope revealed colobomatous formations in the interior of both eyes, those in the right being unusually complete, involving the entire head of the nerve, and forming a deep cleft in the chorioid. As is well shown in the accompanying figure, the top of the coloboma corresponded to the upper edge of the optic nerve. In this portion the ectasia had a depth of about 15 dioptries, the fundus just above it being seen with a convex lens of 5 D., while a concave lens of 10 D. strength was required to outline its bottom. It was about 5 disc diameter broad and this breadth was maintained throughout, the coloboma not broadening toward its base as is the usual custom. The coloboma was not of uniform depth, but as it is well illustrated in the drawing, there were three distinct ectasia, a superior, corresponding to the excavation in the optic nerve, and two inferior in the chorioid, of much the same size and form. A few retinal and chorioidal vessels coursed over the coloboma, and were lost to view before emerging over their edges. The bottom of the coloboma was glistening white, being bereft of pigment or tissue save at its edges. The macular region and the fundus elsewhere appeared healthy.

The left eye had suffered much less, the nerve escaping, save for a small cup shaped depression at the lower outer margin,* the chorioid was but little affected, the coloboma beginning about 2 disc diameters below the disc and extending but about 10 disc diameters inferiorly. The ectasia was oval with undermined edges, deepest above, and was bounded with irregular shaped pigment masses. The vessels stopped at the edges of the coloboma and no vessels or tissue broke the glistening white scleral reflex of its bottom. The level of the fundus was seen with a convex 3 D. lens, the bottom of excavation with a concave 3 D. lens. Vision in the right eye equalled

* This corresponded precisely to the excavation in the head of the optic nerve, pictured by Szili in Fig. 5 of Plate III., in his monograph on *the morphology of the entrance of the optic nerve in the human eye*.

5/70; in the left 5/50. The field showed a marked restriction in the upper part being contracted almost to fixation; the fixation point in both eyes was, however, unaffected.

Case II. Mrs. S. S., *et.* 23 years, daughter of Case I. This patient had never complained of her eyes but submitted herself to examination at request, when it was learned that she too had "queer looking" pupils. As is shown in the accompanying sketch, examination revealed the suggestion of a colobomatous shaped pupil in the right eye and a moderate degree of corectopia in the left. The cornea and pupil in the right eye were both ovoid, at an axis of 100° ; in the left, the cornea was ovoid at an axis of 90° , but the pupil was round and displaced slightly above.

Figure IV well depicts the ophthalmoscopic finding in the right eye, *i. e.*, a moderate amount of absorption of the retinal epithelium with exposure of the chorioidal circulation and some irregular patches of pigment, in an area beginning at the lower level of the disc and extending directly below to almost the periphery of the fundus. About 3 disc diameters below the disc there was an ectasia about 6 dioptries deep, with some chorioidal vessels crossing it.

The fundus of the left eye was normal. Vision in the right eye equalled 5/4, in the left 5/5. The field in the right eye was restricted for color superiorly, that of the left was normal.

My reason for presenting these cases to the Section is because they illustrate the transmission of anomalous conditions from parent to offspring; the chief point of interest, however, centers in the fact that the transmission was from a typical coloboma in the mother's eye to anomalous formations of lesser degree in the daughter's eyes, which are not usually recognized as having any connection with coloboma.

The mother presents the not very rare condition of coloboma of the iris, chorioid and optic nerve, the daughter a moderate degree of corectopia associated with certain disturbances in the chorioid in the median line below the nerve, which taken in conjunction with the coloboma of the chorioid in the mother's eyes, suggests that they too had resulted from an imperfect closure in the foetal cleft.

In explanation of the appearance of these anomalous conditions in the eyes of mother and daughter, and of the appearance of typical colobomatous formation in the eyes of one and of corectopia and certain chorioidal changes in the eyes of the other, I would like to call the attention of the Fellows to an article* which I read before the

* Archives of Ophthalmology, Vol. xxvi, No. 3, 1897.

Ophthalmological Section of the American Medical Association in June, 1897. In that paper I reported a series of cases presenting some unusual congenital defects of the iris, and dwelt at some length upon the genesis of congenital defects of the iris in general, advancing the hypothesis that all anomalous condition of the iris might be occasioned by the improper development of the vascular framework of the iris. I said that "the marginal portion of the secondary optic vesicle from which the iris springs, is essentially a vascular tissue, consisting of but little more than a network of blood-vessels, supported on a delicate connective tissue, which is derived from the endothelial layer and a few spindle cells from the anterior layer. These vessels are formed through the union of the long and anterior ciliary arteries, which anastomose to form the major circle of the iris. From this circle small branches are given off which run inwardly between the cornea and the lens, and represent the chief blood-vessels of the iris. Each of these vascular loops is surrounded with connective-tissue cells which become the stroma of the iris. These vascular twigs with the proliferating cells about them protrude into the anterior chamber and viewed at this stage would represent, to my mind, a segment quite analogous to those which have just been referred to,* and if the process of development stopped here, we would have an appearance similar to that noted in my first case, *i. e.*, a number of more or less isolated roots or segments. Later a union of these segments occurs and the complete iris is formed, the ring-like character of the pupil being given it as a result of the peculiar arch-like form of the vessels after they unite to form the minor circle.

If these segments represent, as I believe, the proliferation of tissue around a twig of the major circle of the iris, and if the iris really grows in this manner, through a primary protrusion of these twigs, then the explanation of many forms of anomalies of the iris would be a simple matter, for we need only suppose an absence of one or more iridal capillaries to account for a defect in the membrane in any position or to any extent, and the occurrence of the isolated segments which have been cited would be readily explained. Although this theory is hypothetical, all others which have been advanced to explain anomalies of the iris are also liable to the same

* The iris in the case referred to was but rudimentary, being about 2 mm. wide in its broadest part. Under high magnification it was discovered that this ribbon-like ring of iris tissue was composed of one well developed and two smaller roots or segments which were crescentic in form and joined with one another to form a complete ring of iris tissue.

reproach, for they are all founded upon clinical observation and insufficient microscopical proof.

By this theory the close phylogenetic relationship between coloboma and other anomalous conditions of the iris can be readily explained, a complete typical coloboma representing the absence of a main iridal branch, corectopia, a slight irregularity in the proper distribution of one of the twigs.

TRICHLORACETIC ACID TREATMENT OF INFECTIVE ULCERS OF THE CORNEA.

BY ALBERT E. BULSON, JR., B. S., M. D.,

Professor of Ophthalmology in the Fort Wayne College of Medicine, Fort Wayne, Ind.

Infective ulcers of the cornea (purulent keratitis) are always serious. They usually result from injury to the cornea from a foreign body, with the introduction of infection at or subsequent to the time of injury. Occasionally the most trifling injury to the cornea, as that from a cinder, is all that is required in those whose nutrition is depressed to terminate, through introduction of infection, in a purulent form of corneal ulceration. Perforation of the cornea, with attending introduction of infection and formation of pus in the anterior chamber of the eye is a common complication, and not infrequently the purulent inflammation extends to all intraocular structures (panophthalmitis) and ends in total loss of sight and eventually a shrunken globe.

Treatment must be heroic if the process is to be checked. The application of caustics, the use of the galvano-cautery, and scraping the ulcerated area with a curette are among the means generally advocated for checking the infective process. The writer has had success in the use of the galvano-cautery, and in curettage followed by applications of pure carbolic acid to the affected area. The report of Dr. Fox on the use of trichloroacetic acid in the treatment of purulent ulcers of the cornea (*Medical Bulletin*, April, 1902) led to the employment of that form of treatment in two recent cases, and the results seem sufficiently interesting to warrant report:

Case I. A. G., 20 years of age, presented himself at my office Sept. 25, 1902, with a history of having injured his left eye with a corn husk five days before. For two nights the pain in and around the eye had been so severe that rest was out of the question. Examination disclosed an exquisitely sensitive and decidedly congested

eyeball, the cornea of which presented an area of yellowish infiltration in the lower quadrant, centrally excavated and perforated. The anterior chamber was about one-third full of pus, and vision reduced to perception of light only. An unfavorable prognosis was given. By paracentesis of the cornea in its lower portion most of the pus in the anterior chamber was evacuated. Following this the infected area of cornea was carefully cauterized with a 20 per cent solution of trichloroacetic acid. Notwithstanding previous anesthetization with cocaine the pain for a few minutes was very severe. A strong solution of atropine was instilled and patient instructed to use hot 1 to 8,000 bichloride douches and applications. Twenty-four hours later the eye was free from pain, the purulency had entirely disappeared from the ulcer, and the hypopyon had practically disappeared. Recovery from that time was uneventful and but for the leucoma (an inevitable result) the eye is fairly normal, and possesses useful vision. (20/50 six weeks after coming under treatment).

Case II. P. T., age 56, came under my care November 30, 1902, for treatment of right eye, injured by tenpenny nail flying from hammer. Upon examination the eyeball was found congested and painful to touch. In the lower third of the cornea a perforated purulent ulcer existed, with extensive infiltration of surrounding corneal tissue. Anterior chamber one-fourth full of pus and iris prolapsed through corneal opening. Vision reduced to perception of bright light only.

Gentle efforts at reposition with a probe resulted in reduction of the prolapse but not in preventing anterior synechiae subsequently. Following cocaineization a 20 per cent solution of trichloroacetic acid was carefully applied to the infected area of cornea and the patient put to bed. Compress bandage and heat as subsequent treatment. Thirty-six hours later every evidence of purulency had entirely disappeared. Patient made an uneventful recovery and six weeks after injury had vision 20/40. The lower third of cornea presents quite a large opacity, and the iris is slightly adherent to the cicatrix marking site of perforation, the patient not consenting to release of the latter by operation.

The experience in these two cases leads me to believe that in purulent ulcerations of the cornea, no matter what the character of infection, treatment with trichloroacetic acid is superior to treatment with pure carbolic acid or any other caustic the use of which the writer is familiar with, much safer than cauterization with the galvano-cautery, and more efficient than curettage.

CONCERNING THE DISAPPEARANCE OF THE LESIONS IN CIRCIATE RETINITIS.*

BY G. E. DE SCHWEINITZ, A. M., M. D.,
PHILADELPHIA.

On different occasions I have presented to the Section the notes of cases of circinate retinitis and illustrated them with water-color sketches and once have discussed the same disease before the general meeting of the college.

The first patient, a woman, aged 77, was studied in the Jefferson Medical College Hospital, first on April 14, 1899, her right eye presenting the typical appearances of the disease which is now usually known as circinate retinitis. The article describing her ocular conditions and illustrated with a water-color, was published in the *OPHTHALMIC RECORD*, January, 1900. Five months after the patient's original visit to the hospital, although vision was practically unchanged, the ring of exudate was more broken than when it had been originally examined, these breaks being chiefly evident above and on the downward curve. Scattered along the line of the lesion were numerous cholesterol crystals, principally below. The disease in the macular region had become more extensive and was represented in the visual field by a scotoma, although it was not possible to demonstrate a scotoma indicating the circinate deposit.

The second patient, a woman, aged 35, presented ophthalmoscopic appearances not as typically circinate as those of the woman just referred to, but none the less in general terms analogous. Her history given at that time, namely, Nov. 21st, 1900, was as follows:

The patient's father is living and has good sight; her mother died at the age of 45 from hemorrhages, probably pulmonary although the only description obtained was that the hemorrhages came from the mouth; the patient has one sister and four brothers, in good condition physically, and as far as she knows they have no trouble with their vision. With the exception of the usual illnesses of infancy, which are said to have manifested themselves with unusual severity, the patient has not been seriously ill. Four years ago she suffered from lumbago, and has always been troubled with defective circulation in the sense that the hands and feet are usually cold. So far as is known her habits have been good and the history of acquired or inherited specific disease was not elicited. She had pursued the occupation of dressmaking for fourteen years, but two years prior to her visit to me her vision became too defective for this calling. Some years ago she states that when her eyes were being examined by the late Dr. Keyser they elicited great interest and many students were called to look at her.

The patient is a small, but well-formed woman, the skin surface

Read before the Section of Ophthalmology of the College of Physicians of Philadelphia.

rather pallid but the lips of good color. Physical examination, which, however, was not very exhaustive, failed to reveal evidences of organic disease. From the description given December 10, 1900, I may quote as follows:

"It will be noted that the nerve-head is nearly round, its outer half atrophic; the vessels are about normal in size and carry normally tinted blood. The disc is surrounded by a faint choroidal ring, while at its outer side is a yellowish area, somewhat pigmented on its borders. Beginning on the top of the disc and following in general terms the sweep of the temporal vessels is a crescent of yellowish-white discrete spots which terminates beyond the macular region, and after an interval begins again below this region in a somewhat irregular fashion, reaching almost to the lower margin of the disc. The center of the area surrounded by this ring of exudate is occupied by a yellowish area of exudate, three times the size of the disc, which is fringed everywhere, except at one spot below, by a broad band of hemorrhage which downward and outward becomes constricted and then expands into a figure not unlike a waterspout in appearance. Down and slightly inward from the central mass are four smaller, yellowish-white and partly pigmented patches, resembling somewhat, except in color, cross sections of the cerebellum. A few yellowish dots of exudate are to be seen on the hemorrhage area."

Vision equalled counting fingers eccentrically at 50 cm. and the peripheral field of vision was uncontracted, but its center was occupied by a scotoma in shape and size resembling the exudate in the center of the ring of yellowish-white deposits.

After two months of treatment, which consisted of ascending doses of iodide of sodium, the patient returned, and the fundus presented appearances very different from those which have just been described. The spots in the upper crescent were fewer in number, while those below had entirely disappeared and the band of exudate had contracted considerably and its hemorrhagic fringe had almost disappeared. Bichloride of mercury was now added to the treatment and the iodide of sodium continued.

Again in two months the patient reported, and no trace of the circinate lesions was visible, only a much smaller and more condensed central exudate. Vision now equalled 5/100. Gradually the central area began to absorb, and a little less than one year after her original visit the ophthalmoscopic appearances were as follows: The disc is nearly round and its outer half distinctly pallid, that is to say, the papillo-macular area is paler than the rest of the disc. Beyond this is a slight fringe of pigment disturbance. In the macular region and slightly above it is the only lesion which remains of the extensive ones first seen. This consists of a slightly egg-shaped, greenish-white exudate which terminates above in a narrow, white prolongation. The surface of this exudate is + 3D, the general eyeground about + 1 D. From its temporal border, following the curve of one of the macular veins, there is a crescent-

shaped extension, while below it and directly occupying the foveal region there is a somewhat tessellated appearance, streaks of atrophy interchanging with delicate pigment markings. The retinal vessels pass over this exudate. Elsewhere the eyeground is absolutely normal in appearance and the bloodvessels carry healthy-looking blood. The field of vision is normal in its peripheral extent; its center is occupied by a small, absolute scotoma which represents the lesion just described.

The third patient, a woman, aged 33, was studied in the Jefferson Medical College Hospital, January 29, 1902. She is the subject of *adiposa dolorosa* of the localized diffused variety, the preponderance of the deposit being upon her thighs. There is nothing in her family or personal history which helps to explain the ocular condition. Her case has been fully reported by Dr. F. X. Dercum in the *Philadelphia Medical Journal*, March 4, 1902.

Her right eye is normal in all respects. Her left eye presents the following ophthalmoscopic appearances. The nerve-head is nearly round, slightly pallid on its temporal aspect, and is surrounded by a pigment ring, slightly fringed and more pronounced on the temporal nasal side. Directly in the macular region is a circular area of yellowish-white exudate, about the size of the disc, surrounded by a broad ring of pigment, over which the retinal vessels pass. The apex of this exudate is about +3 D., the general fundus +1 D. Downward and outward from this central mass and beyond its pigmented circumference is a dark, diffuse hemorrhage, and between the macular exudate and the disc a similar extravasation. Some retinal vessels pass over the surface of the central lesion. Beginning near the disc and following the sweep of the temporal vessels outward toward the macula, is a broad zone of yellowish-white clustered spots, with intervening pigment lines, which, somewhat broken, passes beyond the central exudate, and even more broken passes beneath it near to the lower margin of the disc. The retina between the macular deposit and the inner margin of the circinate deposits is not normal, but is riddled with small, yellow dots, pigment flakes and some hemorrhages. No decided change, one way or the other, occurred in this eye-ground while the patient was under observation, a period of three months. Unfortunately, she has not been again seen.

The following explanations have been suggested to account for the lesions of circinate retinitis:

1. Fibrinous exudates in the deeper layers of the retina coagulate and form the plaques and masses which constitute the characteristic zone (Fuchs).

2. The foci represent areas of fatty degeneration which in turn have arisen from hemorrhages; in other words, the disease is not a special form of retinitis, but is a fatty degeneration following hemorrhagic retinitis (De Wecker).

3. The white spots consist of fat cells where formerly hemorrhages had been present (Amman).

4. The lesions depend upon a fibrinous exudate, in which fatty changes may take place in the later stages, in the external retinal layers, their location being limited to the so-called layer of Henle (Nuel).

5. The yellowish-white areas are simply one of the manifestations of an old-standing edema, thus marking out the periphery of the affected region, the size of the circle varying according to the amount of the previous affection (Marcus Gunn).

6. The characteristic degeneration depends upon vascular changes, especially upon changes in the group of vessels which supply the macular region; these vessels are obliterated and the parts supplied by them are destroyed (Goldzieher). In other words, this condition of degeneration of the tissue of the retina results from a disease of the smallest macular vessels, especially the arteries (Oeller).

It is possible that several of these explanations may be correct, one being operative in one case and a second in another, but I think, in spite of the assertions of De Wecker, Masselon and Amman, based as they are on clinical and pathological observations, that it is too much to assume that these white patches always depend upon pre-existing hemorrhages. As Oeller¹ justly says, "it is not very intelligible how such large patches with a quite definite and characteristic grouping should develop from hemorrhages which perhaps are not always visible with the ophthalmoscope, but are at any rate irregularly distributed. Although retinal hemorrhages do usually occur in retinitis circinata, yet the appearance of white dots after hemorrhages proves their etiological relation to one another just as little as their simultaneous occurrence would, even though the anatomical examination does show disintegrated red blood corpuscles inside fatty granular cells. The ring of spots, therefore, could hardly be a direct result of hemorrhages. The hemorrhages and spots, however, have most likely a common origin in the degeneration of the vessels."

It must further be admitted that not all of the eye-ground lesions which have been described and depicted as circinate retinitis are exactly alike. In other words, both typical and atypical varieties have been recorded. This fact may explain the different views which have been expressed in regard to the etiology of the affection and still further help to explain varied statements as to the ultimate

¹Atlas of Rare Ophthalmoscopic Conditions by Dr. Oeller, translated by Thos. Snowball.

outcome of the disease, *i. e.*, whether the lesions are permanent, progressive or retrogressive. Taking all cases together, three terminations seem possible:

(1) The disease is essentially chronic and the ophthalmoscopic appearances remain unchanged for years.

(2) True white degeneration of the retina is slowly but surely progressive (De Wecker). Indeed, to use the words of Joseph Schöbl, "in some cases the exudation does not disappear, and gradually the retina becomes enormously thickened. The macular spot and zone of white spots are changed into dirty, yellowish-white, protruding, connective tissue-like masses." Vitreous opacities, posterior synechiae and retinal detachment may occur (Fuchs).

(3) The ring of white spots may partly disappear, as, for example, in my first case,² or to speak more accurately, the zone of exudate breaks up and partly disintegrates; or the entire circinate exudate may disappear, as in my second case and also in one recorded by Hartridge; or finally, both the macular exudate and zone of white spots may be absorbed, as in a case recorded by Fuchs.

I am well aware that De Wecker would exclude from the category of true white degeneration of the retina, those cases in which a disappearance of the lesions has been described; but if they are admitted, as it seems to me they should be, at least as varieties of the disease, even if they are not typical (and one of my cases does not seem to be far from typical, while another in which there was partial (later entire) disappearance of the circinate lesion was exactly typical), then we may say that the disease is not always progressive.

The evident conclusion of the matter is that given a case of so-called circinate retinitis, a fatal prognosis *quoad visum* should not immediately be given and all reasonable therapeutic measures should have fair trial.

As to the length of time required for the absorption and disappearance of the spots definite statements cannot be made. I have seen beginning disintegration of the ring in five months in one case, and its complete disappearance in a little more than a year in another. Four years elapsed before this desired result was obtained in one of Fuchs' patients. Doubtless in those cases in which the processes of absorption remove the white spots, the disease of the macular vessels which has caused the lesions to arise has not been sufficiently pronounced or persistent to bring about destruction of

²Dr. Hansell informs me that he has seen his patient recently and that the zone of white spots has entirely disappeared.

the areas which they supply; or it may be that Marcus Gunn's explanation fits these cases, *i. e.*, that the zone of white is really a manifestation of long-standing edema. Suppose, as he suggests, that an inflammation of the macular region arises and from it an edema extends circularly for a certain distance until stopped by contact with the healthy retina. At this peripheral circular fold or puckering the changes would take place and assume the shape they have in circinate retinitis. Suppose again that the central inflammation should subside and with it the edema, then also would the white spots by which it was interpreted disappear. Be this as it may, these cases should be treated. I have some faith in the iodides, especially the iodide of sodium; mercuric bichloride seems useful. I would also try subconjunctival saline injections and perhaps pilocarpin diaphoresis.

The first Egyptian Congress met at Cairo, December 19-24, 1902. In the Section of Ophthalmology, Dr. Voilas, of Cairo, said that acute trachoma does not exist; its evolution is always chronic and latent, having for its seat the cellular tissue adjacent to the conjunctiva. It is a disease of the connective tissue, and not of the conjunctiva itself. Dr. Guarino, of Cairo, has examined conjunctivae of some of the well-conserved mummies, and concludes that trachoma existed from time immemorial. He concludes that trachoma invades the lymphoid layers and engorges the lymphatic cells. The trachomatous bodies are formed of agglomerated corpuscles, which represent a lymphatic follicle, analogous to Peyer's patches. They are glandular new formations, covered with epithelium, and scattered in the thickness of the mucosa and submucosa. Dr. Eloni Bey, of Cairo, discussed conjunctival granulations. After having spoken of the etiological conditions of granulations, individual causes, the dirtiness of the Fellahin (Egyptian peasants) and their dwellings, and flies as vehicles, he passed to the symptoms which he described minutely, and gave statistics from the governmental, national and primary schools (kouttabs). In the governmental schools 32 per cent, in the national schools 65 per cent, and in the kouttabs 75 per cent, of the students were affected. He concluded that the disease was the more frequent and serious the more filthy and overcrowded the people are in their habits. The hygiene of houses, their ventilation, disinfection and cleanliness are prophylactic measures advised.—*Philadelphia Med. Journal*, January 31, 1903.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XII, No. 2. CHICAGO, FEBRUARY, 1903. NEW SERIES.

REPORTS OF SOCIETIES.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Clinical Evening, December 11, 1902.

William Lang, F. R. C. S., Senior Vice President in the Chair.

Previous to the commencement of the meeting Mr. Lang referred in feeling terms to the loss the Society had sustained by the death of the president, Dr. David Little. Subsequently Mr. Lang was elected by the Council to fulfill the duties of the president for the remainder of the session.

Mr. Stephen Mayou showed a case of *Contracted Pupils undilatable to a mydriatic*. Mr. Sydney Stephenson said that there was in the patient evidence of congenital syphilis with absence of knee jerks and he looked upon the case as one of early tabes. The pupils reacted to accommodation but not to light.

Dr. Edridge-Green gave demonstrations of a *Classification Test for Color-blindness and also a lantern for the detection of Color-blindness*. The first consisted of colored wools, silks, glass, and cards. It was quite impossible for a person to tell by contrast the different colors unless they were actually able to recognize them. The lantern test consisted of one in which colored glasses either alone or in combination could be used.

Mr. Charles Blair and Dr. Bernard Potter showed two cases of *Aniridia* and one of *Coloboma of the Iris* in the same family.

Mr. Blair also showed a case of *Zonular or Ribbon Shaped Opacity in the Cornea*.

Mr. E. E. Maddox demonstrated an *electric eye heater* which could be applied in an eye dressing and which could, by means of a regulating transformer, be heated by the current from the main. He also showed a lamp resistance.

Mr. Sydney Stephenson exhibited several patients whose *corneae* had become stained by the long continued use of sulphate of copper for trachoma. The opacity covered the central part of the cornea, and was accentuated towards the upper and lower margin so as to form two crescents of a rusty or greenish color. Pieces removed from the affected cornea by scraping gave some of the characteristic chemical reactions of copper.

Mr. N. C. Ridley showed a case of *Congenital Anophthalmos* and one of *Embolism of the Central Artery of the Retina* in a young girl which followed a severe fright.

Mr. Treacher Collins showed a case of *Atrophy of the Optic Nerves due to lightning*. This was probably due to electrolytic action.

Mr. Arnold Lawson showed a case of *Acromegaly in which there was Bitemporal Hemianopia*. He had treated the patient with pituitary gland and although one eye had improved a good deal yet the other, which was at first the better of the two, had become a good deal worse. Mr. Doyne had seen no good result arise from the treatment with pituitary gland.

Mr. Lawson also showed an unusual form of *Retino-Choroidal change the result of Haemorrhage*.

Mr. Lang thought the case extremely suggestive of *Sarcoma*.

Mr. Jessop showed a case of *Optic Neuritis with peculiar Retinal Changes*.

Dr. F. E. Batten showed a case of *Cerebral Degeneration with*
C. DEVEREUX MARSHALL, F. R. C. S.

MEXICAN OPHTHALMOLOGICAL SOCIETY.

TRANSLATED BY A. B. HALE, M. D.

Meeting of July 7, 1902. Dr. Montano presiding.

Huge papillomata of tarsal conjunctiva in exuberant periconjunctivitis.—Dr. Vélez showed a girl of 14, disease having existed for eight years; she herself at five first discovered the condition when she happened to evert the lid and saw the granulations. Microscopical examination showed stratified pavement epithelium, in some places noticeably enlarged. "Plasmatic cells of Unna," forming zones around the blood vessels. Treatment by cautery and electrolysis was imperfect, but glycerite of iodine gave best results, though it did not completely remove the growths.

Uribe Troncoso considered this a valuable contribution to the clinical study of periconjunctivitis. A few months ago the papillomata had looked like genuine tumors. He had at first thought of trachoma, even.

Cysticercus of Vitreous.—Dr. Montano showed a case which had seemed to be prolapse of the retina, but where a live cysticercus had been found. He had no faith in drug treatment, and preferred enucleation to either attempt at extraction or electrolytic puncture. Dr. Ramos said that in some cases diagnosis was hard, and might be confused with retinal leucosarcoma. Uribe Troncoso preferred to leave enucleation for the last and to practice extraction with forceps. The operation had been successfully done and should always be tried. Vélez preferred electrolytic puncture, and if the animal was killed, the vitreous might easily tolerate it.

Meeting of September 4, 1902. Dr. Lopez, presiding.

On motion of Uribe Troncoso it was resolved: "That the Society meet monthly in ordinary session and annually in extraordinary session. At the annual meeting there shall be chosen in advance two topics of general interest for the study of which there shall be appointed two essayists."

Chanez had seen a case of *zonular cataract* showing areas of choroidal atrophy. He had practiced iridectomy in such cases with good results. He also told of an enucleation which did not give a good prosthesis till he did a plastic operation with conjunctival flaps, and asked whether skin flaps are serviceable in such conditions. Uribe Troncoso had used skin from the arm, and although there was noticeable retraction after six months, he thought less than of conjunctiva.

Melanotic form of exuberant periconjunctivitis.—Uribe Troncoso said that Dr. Ramos had proposed to call it oxide of iron conjunctivitis. Pigmentation is a not unusual symptom, but is sometimes very prominent in periconjunctivitis. Diffuse conjunctival pigmentation may be an entity, and even then may proceed from irritation after periconjunctivitis.

Lopez showed a patient with cysticercus in the vitreous, below and near the ciliary region. The advice of Dr. Vélez, who told of his treatment of the case presented in the meeting of July 7, 1902, had been followed. A subconjunctival injection of cyanid of mercury was given. A few days afterwards Dr. Vélez had used electrolytic puncture, managing to touch the vesicle with the needle (negative pole employing a current of 7 m. amperes for one minute).

the positive pole being on the sclerotic. The animal's movements had been inhibited but the exudate around the vesicle had prevented good vision. The patient had suffered acute pain for two days.

Meeting of October 2, 1902. Dr. Santos Fernandez (Habana) presiding.

Treatment of Cysticercus discussed in the previous meeting, continued.—Lopez had continued the study of the case reported, but could see no change, though the patient reported improvement, perhaps because he dreaded further treatment. Male fern, he had found, too thick for subconjunctival injection, but Prof. Calderon had prepared a solution in sterile oil, which, injected beneath the conjunctiva of a dog and rabbit, had caused great inflammation with edema, which finally subsided. Injected into the vitreous of an animal it caused complete and permanent opacity. This enucleated eye he now had for examination.

Concerning electrolytic puncture, he found that all authorities used the positive pole in treatment of vitreous opacities and of prolapse of retina. The positive pole is less active, less destructive and forms a slight scar. The negative pole forms a greater scar. He would be inclined to use the positive pole.

Uribe Troncoso was skeptical about the absorption of drugs such as cyanid of mercury, subconjunctivally, used as a parasiticide, but, injected into the aqueous or vitreous, salt solution of mercury might act as an astringent upon the vesicle of the cysticercus. The eye with cysticercus is in danger and may suffer from iridocyclitis, etc.; electrolysis is promising, but its results uncertain. He was not sure that in Dr. Vélez' case the animal had been killed. Enucleation might yet be necessary. Most European authors doubted the use of electrolysis and preferred the forceps. He quoted statistics on this point, that 60 to 70 per cent of success followed. He considered the extraction of the cysticercus, subretinal, not difficult—not much more difficult even if within the vitreous so long as the ophthalmoscope could follow the advance of the forceps. Some loss of vitreous was not to be feared. An incision of one to one and a half centimeters sufficed.

Montano supported the opinion of Uribe Troncoso. No electrolysis, but forceps first, then enucleation if necessary. Vélez referred to the analogous extraction method of using the electromagnet for iron in the vitreous, and would prefer the electrolysis to forceps. Chacon rather supported Uribe Troncoso and Montano. Chanez thought electrolysis a faulty procedure. Uribe Tron-

case closed by saying that electrolysis was faulty, either because it did not kill and therefore left the animal to do still further mischief (iridochoroiditis), or because it did kill and left the cadaver to do the mischief. In his judgment immediate extraction with forceps was best.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting of December 20th, 1902, at Colorado Springs. Dr. E. R. Neepcr, of Colorado Springs, chairman for the evening.

*Case 1. Ralph, aged 12. Shown by Dr. J. A. Patterson, of Colorado Springs. History of injury: On the 4th of July last, by explosion of firecracker in right eye, traumatic cataract resulted with divergent strabismus. In this condition he was seen by Dr. Patterson about a month after the accident. His parents claim that the boy had no strabismus before the accident. The pupil was widely dilated and bound down by extensive posterior synechia. A needling was performed September 9th, but as there was little or no absorption, on Nov. 15th a linear extraction was performed. There is still some opaque corticle below, and the pupil remains widely dilated and fixed. Vision is $5/5$ W. $+ 11.00 \subset + 1.50$ ax. 90. This correction was given for O.D and for O.S $+ .25 \subset + .25$ ax. 90, in hopes of overcoming the divergent squint. The boy has diplopia with or without his correction. He manifests from 16° to 24° of exophoria and 9° of hyperphoria. He is more comfortable with his refraction corrected. He converges all the pictures of the Bull-Holmes stereoscope, and practices with a 25° prism, base out. At times he is able to maintain binocular single vision by a seeming voluntary effort.

Case 2. Shown by Dr. Geo. F. Libby, of Colorado Springs. Mrs. A. M., aged 57. Presented herself for examination Nov. 8th with history that two nights ago noticed sudden blurring of the sight of O. D. Complete loss of vision soon supervened with photopsies but no pain.

Condition: O. D. V. $10/300$, in nasal-inferior field, O. S. V. $5/20$. Refraction about 2 D. hyperopic. Urine normal. Fundus, numerous retinal hemorrhages and large dense vitreous opacity below with general vitreous cloudiness. He prescribed mercury and iodide of potassium which she took for two weeks and then stopped taking it. Of late there has been a steady improvement without medication. The vitreous opacities are clearing, and no hemorrhages to be seen.

Vision 5/30. He desires to know if it is advisable to allow her to go on without medication?

Case 3. Shown by Dr. E. R. Neeper. C. N., aged 64. General health good. Has never had to use eyes much for near work. Complains of defective vision for past six years. O.D.V. 20/30. O.S.V. 20/40. Lying just underneath the anterior capsule of each lens is a ring opacity $2\frac{1}{2}$ mm. in diameter with a semitransparent center, the lenses otherwise are normal.

Case 4. Shown by Dr. Neeper. D. G., aged 23. Family history good. General health good. Nine years ago while playing ball he collided with another player receiving a deep cut $1\frac{1}{2}$ inches long and $\frac{3}{4}$ of an inch below left eye and parallel to the margin of the lower lid. A physician closed the wound with eight stitches healing being uneventful. Since then each time that he closes the eye the whole left side of the face moves in unison. The patient has become very sensitive about it, in fact almost morbid. He is willing to submit to any operative procedure. For the present he is receiving massage administered by an expert, and a very decided improvement is manifest. It is evident that the orbicularis muscle is adherent to the skin, and the question is, other means failing, should an operation be tried, and if so, how should it be done?

Case 5. Shown by Dr. Neeper. T. N., aged 12. This boy is very fond of bathing. Often locks himself in the bath room and remains in the tub for hours. When he does this his eyes are inflamed for a day or so. Inflammation then usually subsides, but sometimes lasts a week or more. He came under Dr. Neeper's care about a month ago because his eyes had troubled him longer than usual after one of his baths. The patient complained of photophobia and lachrymation. There was found present follicular conjunctivitis, with numerous superficial and deep corneal opacities. The conjunctiva and the superficial corneal opacities have cleared up. There is not as much photophobia. The deep corneal opacities remain unchanged, there being about twenty in the right cornea and thirty-five in the left.

Case 6. Shown by Dr. Neeper. G. W. H., aged 53. Health excellent until within last few months. Lungs feel sore. Works regularly at his trade of carpentering. Some distress in left occipital region. On Nov. 27 while building morning fire noticed that O. D. was blind. In half an hour vision returned and remained so until the afternoon of the next day, when the same eye again became blind. Dr. Neeper saw him Nov. 29th, when he found the vision of

the affected eye to be nil, with a typical ophthalmoscopic picture of plugging of the central artery of retina. The patient was instructed in the use of vigorous deep orbital massage, and was given internally Kali. Iod. Dr. Neeper has not seen him since until tonight. At present there is a slight, but an increasing amount of peripheral vision. The macula now has a dark pigmented appearance, and there is a retinal hemorrhage near the disc, that he is sure was not there when he saw him before.

CASE 7. Shown by Dr. Neeper. S. S., aged 38, colored. Servant. Good health. Rheumatic diathesis. Under homatropine she accepts +1.25 in O. D. and +2.00 in O. S. with vision of 20/30. Right field normal. Left field contracted in superior temporal quadrant. She complains that vision of O. S. has been failing for past six weeks. No pain at first, but has darting pains in this eye now six or seven times a day. Gives a history of O. D. having been blind for six months some eight years ago, and of the vision being gradually restored to normal without treatment.

Condition.—Fundus of O. D. normal. In O. S. there is a peculiar choroidal change resembling disseminated choroiditis. There is no history of injury.

Discussion.—Dr. Black in discussing Case 1 said he did not understand what Dr. Patterson expected to accomplish by correcting the aphakia so long as perfect vision obtained in the fellow eye. He had always believed that such correction would produce constant diplopia and that no amount of training would enable the patient to fuse the images. Further, that the aphakic correction was contraindicated for cosmetic reasons. For the present he should be contented to correct the upward turning of the divergent eye by tenotomy of the superior rectus, and if divergence persisted, after some years, when it had become fixed, he would advance the internus for cosmetic reasons.

Dr. Geo. F. Libby said in regard to this same case that beyond the correction of the hyperphoria he would do nothing.

Dr. Edward Jackson, of Denver, thought that there were some reported cases of monocular aphakia with perfect vision in the fellow eye where binocular single vision had been obtained with aphakic eye corrected. He would advise Dr. Patterson to persevere along the lines upon which he has been working. He thought Case 3 shown by Dr. Neeper one of congenital cataract. He thought Case 6 had first a spasm of retinal arteries and that a thrombus

formed as a result. He recalled similar cases that he had seen where the first attack of blindness was of short duration with perfect restoration of vision followed by permanent loss of vision from the formation of a thrombus. In regard to Case 4 he was not in favor of operation. He would advise that massage be continued, and that thiosinamine be given internally. Dr. Black concurred with Dr. Jackson in this. Dr. Jackson would advise in Case 5 that the boy be put upon inunctions of mercury and hydriodic acid.

Dr. Wm. C. Bane, of Denver, asked if the hemorrhage present in the retina of Case 6 could have been caused by the deep orbital massage.

Dr. D. H. Cooper, of Denver, would advise that an operation be performed upon Case 4 with a view to freeing the adhesions between skin and orbicularis. He had once performed successfully such an operation for just such a condition.

Dr. A. C. Friedmann, of Colorado Springs, would in Case 4 dissect out the scar tissue and transplant a new piece of skin from the arm.

Dr. Patterson said in Case 1 he had corrected the aphakia purely for experimental reasons. It was evident that divergence and sursumvergence was rapidly developing before the correction of the aphakia, and that it had not progressed since the correction was given. Diplopia was present with or without the correction. He was disposed to correct the upward turning of the eye as proposed, as he thought it would make the divergence easier to handle without operation.

CASES REPORTED.

Dr. Edward Jackson reported the case of a man, who, while cutting iron with a cold chisel, was struck in the eye by a flying particle. He was not seen by Jackson until three or four days after the injury. The cornea presented a 3 mm. irregular wound. Nick in pupillary margin. Lens becoming opaque in streaks. No view obtainable beyond this. He performed a linear extraction of lens. Used Johnston's magnet in front of cornea without result. He then introduced the long tip of magnet through the wound made for extraction and withdrew a chip of iron 3x2x1 mm. A drop or two of vitreous escaped. This kept wound open for five days. On the eighth day vision was 4/15 w. + 10.00. He went home a few days later with vision of 4/9 w. + 11.00 \subset + 1.50 ax. 15. The pupil was not then entirely free from corticle.

Denver meeting of Jan. 17th, 1903. Dr. Edward Jackson, chairman for the evening.

CASE 1. Shown by Dr. E. W. Stevens, of Denver. Italian, aged 40, was struck in right eye Dec. 22, while chopping wood, by a sword shaped piece of wood. The globe was penetrated at the nasal sclero-corneal junction. The globe was collapsed from the escape of aqueous and vitreous. Dr. Stevens closed the wound by using ten sutures. In this operation more vitreous was lost. After the wound was closed he injected into the collapsed eye normal salt solution with an Anel's syringe. The reaction has been very slight. Not more than the normal reaction after cataract extraction. The lens is in position and is perfectly clear. The fundus is normal in appearance. A very high degree of astigmatism exists with vision reduced to $1/40$.

CASE 2. Shown by Dr. Wm. C. Bane, of Denver. M. L., aged 4. Seen by Dr. Bane six weeks ago. No history of injury. Patient was brought to his clinic with O. D. inflamed, with a perforation of cornea with a synechia of iris closing it. The cornea was otherwise clear. He has not seen the case again until today. Vision is nil. Cornea universally opaque, vascular and bulging slightly.

CASE 3. Shown by Dr. Bane at two previous meetings. Miss A. N., who has extensive macular changes. The question of albuminuric retinitis, which at previous meetings has been a disputed point, seems now definitely settled in the negative. Dr. Bane has only seen the patient at very irregular intervals. Upon examining her fundus today he discovered two large atrophic choroidal plaques, one above, and the other below the macula, at a distance of some four disc diameters from the macula. These plaques he has never seen before, nor have any of the members of the society seen them. Have they existed and have we overlooked them, or are they new? The central choroidal changes are more marked, and yet the vision has increased to $6/200$ from $1/200$. She has been taking until recently $1/4$ gr. protoiodide of mercury t. i. d.

CASE 4. Shown by Dr. Edward Jackson, of Denver. K. B., aged 35. This woman has always had poor vision, and it has been growing progressively poorer. She has a younger sister who is similarly affected and is said to have the same fundus lesion. She has no night blindness. Media clear. Retinal vessels small. The whole central portion of fundus has atrophy of choroid, numerous pigment deposits in retina, in and about macular region. These

pigment dashes radiate from the macula. It is a complement of retinitis pigmentosa. Some of the pigment deposits are in front of the retinal vessels and look something like the pigment changes in retinitis pigmentosa. There is no absolute central scotoma and yet her best vision is eccentric and 4/40.

CASE 5. Shown by Dr. Jackson. Girl, aged 10. History of swelling of right cheek six weeks ago. Two weeks later the eye on same side became sore. The condition was believed by another oculist to be syphilitic and she was put on injections. When first attacked she had fever and vomiting. She has lost in weight. When seen by Dr. Jackson on the 2nd of this month, he found great enlargement of preauricular and cervical glands on right side. Lower lid of O. D. swollen, if anything more than it is now, upper lid droops. Cornea clear. Upon everting lower lid the palpebral conjunctiva and fornix were found extensively covered with round and irregular masses of infiltration somewhat larger than trachoma bodies. Numerous vessels ran in from the periphery. Between these granules was a kind of white necrotic tissue. The whole part presented the appearance of a low grade of inflammation. The palpebral conjunctiva of the upper lid was inflamed, and had a velvety succulent appearance. The secretion was a sticky, flocculent watery discharge, and not very abundant. The appearance tonight is about the same as when he first saw it. Dr. Mitchell was given some of the discharge and some of the scrapings of the necrotic tissue and found two tubercle bacilli. The condition resembles Parinaud's conjunctivitis, but the finding of tubercle bacilli places it under the latter heading. The mother has scars on her neck. The child lately is irritable and he fears tubercular meningitis.

Discussion.—Dr. Jackson thought that Case 2 might have been caused by an injury, and that in children the absence of such history was not uncommon. He also thought it possible that there might be a growth in the back of eye. He thought the atrophic changes in the fundus of Case 3 were new or they would have been seen before.

Dr. A. C. Friedmann, of Colorado Springs, thought in Case 1 that it was too early to prognosticate. That in Case 2 enucleation would be advisable if a growth was strongly suspected. He thought the prognosis to life in Case 5 was very bad.

Dr. Walter Hilliard, of Denver, would suggest in Case 3 large doses of K. I. and plenty of water.

Dr. Stevens thought that in Case 3 since she had tuberculosis

the iodide was contraindicated. He once had a sad lesson in giving K. I. to a tuberculous patient.

Dr. J. A. Patterson, of Colorado Springs, thought that in Case 3 therapeutics would do good. He thought in Case 1 there was danger of sympathetic ophthalmia.

Dr. Melville Black, of Denver, thought in Case 2 that an injury might have caused a corneal lesion that was perforating in the beginning or had become so from ulceration. From the extreme neglect of the child by its parents it is easy to understand how the present condition obtains. He found no reason to suspect a growth in the eye. He thought the atrophic changes in Case 3 were old and that we had overlooked them because they were so far out in the periphery of the fundus. It is evidently not a case of retinitis albuminosa but a choroiditis from unknown cause. He thought in Case 1 that owing to absence of cyclitis the eye would not shrink and that danger from sympathetic inflammation was remote; that much credit must be given to the injection of salt solution; that Case 5 was a most instructive case and worth going a long distance to see. He had not before seen a case of tuberculosis of the conjunctiva, and this seemed to be a typical case.

Dr. Geo. F. Libby, of Colorado Springs, thought at once of lupus, and asked if the tuberculin test had been tried.

Dr. Jackson said he had tried to gain the consent of the parents to try the tuberculin test, but the family physician had objected, and that now, fearing tubercular meningitis, it was inadvisable. He thought of trying the x-ray if the physical condition of the patient warranted it. He would have scraped off the granulations before this had it not been for the evidence of tuberculosis of the glands of the neck.

CASES REPORTED.

Dr. J. A. Patterson, of Colorado Springs, showed a piece of steel $1 \times 3 \times 10\frac{1}{2}$ mm. in size that was removed from the eye of a machinist midway between the cornea and caruncle. The foreign body did not pass entirely into the eyeball and was easily removed with forceps, leaving a gaping wound of sclera with escaping vitreous. The wound was closed with a suture. The retina was found detached over a considerable portion of that side of fundus. Healing was uneventful. The retina is now reattached and vision is 5/7.5 —.

CASE 2. Widow, aged 68. Consulted Dr. Patterson last June while on a short visit in Colorado en route to California. Her home

is in New York. She had previously consulted an oculist in New York, who corrected her refraction and gave her a sol. pilocarpine to use at night. She complained of colored rings around lights, and had seen them off and on since 1901. Since recently taking a long drive and being fatigued she was aware of a blur of O. D., and persistent colored rings around lights at night. The tension was normal or questionably plus. Pupils, right 3 mm., left $2\frac{1}{2}$ mm. Fundus, no cupping of disc, venus tortuosity and venus pulse. O. D. V. 5/7.5. O. S. V. 5/6. Fields normal for white and slightly contracted for colors. She was given 1 per cent sol. pilocarpine for use at bedtime. This made no change in size of pupils. She was later given a solution of eserine because her subjective symptoms were worse. At this time she went on to California. When she returned to New York she consulted an oculist at Dr. Patterson's earnest solicitation, who wrote a short time ago that vision of O. D. had been practically lost, and that O. S. V. was 20/40. The question is, in the presence of general artero-sclerosis, hyaline casts, and a cardiac murmur, and at her age, would an iridectomy have been justifiable at the time she was under Dr. Patterson's care?

MELVILLE BLACK. Sec'y.

SECTION ON OPHTHALMOLOGY—COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting, January 20, 1903. Dr. William Thomson, chairman, presiding.

Dr. Wm. Campbell Posey exhibited a case of *Conjunctivitis Petrificans*, in a healthy colored female, aged 30. Inflammation had appeared at the age of 12 without known cause, and relapses had occurred at intervals of about three or four months since. The conjunctiva of the lids of both eyes were swollen and injected, and were studded with numerous yellowish-white areas slightly raised above the surface, but beneath the epithelium. The lower fourth of each cornea was superficially infiltrated and vascular. There was no discharge and but slight lachrymation. Ophthalmic examination negative.

Dr. Posey considered this to be an instance of the disease first described by Leber in 1895. He called attention to its rarity and mentioned the changes observed by Leber and described by him so fully in 1900. A detailed report was deferred until later, but suf-

ficient of the tissue was removed to indicate that the spots consisted, as in Leber's case, of carbonates and phosphates of lime. Treatment consisted in the repeated and thorough removal of the masses from the conjunctiva by mechanical measures, and the employment of mild antiseptic lotions and warm compresses.

Discussion.—Dr. Risley called attention to a similar case presented to the Section two years ago, in which the calcareous deposit was much more extensive, and was straw-colored. It was interesting to note that it occurred in a man about 60 years of age, while, as shown by Dr. Posey, the previously reported cases, including the one now exhibited, were young females. Dr. Randall had studied one case, and found that the particles upon removal effervesced with the mineral acids. They were probably similar in structure to the concretions seen in the lachrymal secretions.

Dr. E. S. Saylor reported (by invitation) two cases of *Monocular Blindness following Traumatism*. One, a boy, aged 15, was caught between a mine car and a mule, causing contused and lacerated wounds of head and chest. Blood flowed from the nose, mouth, and left ear, the tissues about the nose were emphysematous, and vomiting continued for 36 hours. Upon admission to the Pennsylvania Hospital, service of Dr. G. C. Harlan, there was found impaired sensation to left side of face, mouth drawn slightly to right, tongue protruded in median line, with loss of taste on left half, and hearing poor in left ear. Examination of the eyes showed, R. E., normal media and eye ground, $V = 6/5$; L. E., slight ptosis from edema of lids, pupil, 7 mm. and irresponsive, media clear, fundus normal, although some engorgement of retinal veins, especially inferiorly. Rotation of globe limited in all directions. $V =$ uncertain l. p. There was a gradual improvement in vision, and a month after the injury the pupil was 6 mm., optic disc pale and slightly atrophic, and $V = 5/45$. In the second case, a 32-calibre bullet entered above the inner canthus of the left eye; passed downwards, backwards and slightly outwards, and lodged in the soft tissues back of the left tonsil. Patient unconscious for 7 days. Examination of eyes three weeks after injury showed R. E., normal, L. E., pupil 7 mm. reacts consensually but not to direct stimulation, media clear, color of fundus normal, disc grayish-white in color, with disappearance of arterioles, no motor paralysis of facial or ocular muscles, eye blind. Hearing and taste unaffected. Six weeks afterwards, central $V = 5/6$; with the eye rotated 30° to the temporal side, $5/5$; field contracted to the 30° line. Two years

later, central V = 5/10; with eccentric fixation, 5/6.

Discussion.—Dr. Harlan had examined the first case shortly after the injury, and believed that the blindness was due to fracture of the orbit through the optic foramen. It was difficult to explain the partial return of vision in these cases, except upon the assumption of a small clot which was subsequently absorbed. If extensive hemorrhage occurs, vision would be destroyed.

Dr. Risley thought that the two cases possibly belonged to different groups. In six cases reported by him a few years ago, in all of which blows had been received on some portion of the orbital rim, atrophy of the optic nerve and blindness had followed in from five to eight weeks after the injury. In Dr. Saylor's first case he thought the sudden blindness might be explained by a retro-ocular hemorrhage, the partial restoration of vision following as the clot absorbed; the subsequent atrophy, as in his own cases, being due to the pinching of the optic nerve in the foramen. In the second case he was inclined to ascribe the symptoms to the presence of a blood-clot in the orbit back of the eyeball, the restoration of vision being due to its absorption. The maintenance of good vision, after two years, was incompatible with any theory of permanent injury to the optic nerve. Dr. Shumway referred to a case examined by him six years after a fall upon the head, resulting in loss of consciousness for two weeks and complete blindness. Vision gradually returned, equally 6/6, although nerves were somewhat atrophic, the form field contracted, and color perception confined to the fixation point. Complete deafness on one side with no bone conduction. He believed the symptoms to have followed a hemorrhage at the base, which was subsequently absorbed. Dr. Randall believed that in injuries from concussion or compression the situation of the lesion was often in the cranium and not in the orbit. Hemorrhage into the sheath of the nerve, he thought, should exhibit marked change in the venous circulation of the retina.

Concerning the Tubular Visual Field of Hysteria.—After a brief review of some of the important literature pertaining to the visual fields of hysterical patients. Dr. G. E. de Schweinitz described at some length the observation of Richard Greeff, that under certain circumstances the concentrically contracted field found in hysteric patients maintains the same size, no matter at what distance the point of fixation of the examined eye is placed; in other words, that the field has a tubular character. The hysteric has, to use the term which Greeff has given, a röhrenförmige.

Dr. de Schweinitz, in association with Dr. Shumway, had observed this type of field in several cases of hysteria, and briefly referred to five similar observations which had been made by Dr. William G. Spiller. It may be stated, then, that the most important visual field phenomena found in hysteric patients is concentric contraction of the visual field, often associated with dyschromatopsia and inversion of the color field, together with a tubular character of this field.

Dr. John T. Carpenter reported the clinical history of a case of *Syphilitic Neuro-Retinitis* occurring in the late secondary stage, and marked by a double optic neuritis with the typical stellate figure of albuminuric retinitis around each macula. The diagnosis presented some difficulties, owing to the fact that the specific infection was unsuspected, and the patient, a young boy of 19, who had suffered from acute Bright's disease following scarlet fever in infancy and presented the clinical symptoms of mild chronic nephritis. Under active antisyphilitic treatment, the neuritis disappeared and the retina regained its transparency. The vision was unaffected. The patient, three years after the initial lesion, showed evidences of cerebral syphilis, facial paralysis, slight ptosis and attacks of severe epileptiform convulsions. These attacks were unaccompanied by ophthalmoscopic changes. The interesting point of the case was the onset of bilateral optic neuritis accompanied by the appearance of a stellate figure around the macula, during the late secondary or early tertiary stage of syphilis, both of which disappeared completely under treatment.

Dr. S. D. Risley presented the history of a case of *Delayed Union after Iridectomy* for simple glaucoma in a woman aged 31. The disease had begun in one eye at the age of 19, and in the other a few years later. V=R. E. 1/60; L. E. fingers in the temple field. For twelve years she had suffered almost constant headache with frequent exacerbations of violent pain and dimness of vision, for which eserine and pilocarpine were used. During September and October, 1902, her suffering became more severe, and vision failed rapidly. On October 31st, when first seen by Dr. Risley, the corneae were steamy, anterior chambers too shallow, pupils medium and fixed, T=R. E. +1; L. E. +2. As an acute glaucoma seemed imminent an iridectomy was done under general anesthesia on both eyes at one sitting. The operations were without accident, leaving a broad, peripheral coloboma upward in both eyes. The pain in both eyes and head was promptly relieved. There was no

reaction, but at the end of two weeks the wounds, though in perfect apposition, had not closed. Dark masses then appeared in the line of incision in the left eye, and a week later on the right side. These slowly shrank so that at the close of the fifth week the patient was discharged from the hospital with the wounds closed but the anterior chambers obliterated, the iris and lens in both eyes lying in close contact with the cornea. Ten weeks after the operation both wounds were smooth, but showed a dark line the entire length of the section. The iris and lens were still in contact with the cornea in both eyes. T=n, corneæ clear, no pain, field in left unchanged, in the right wider than before operation—very high corneal astigmatism.

WILLIAM M. SWEET, Clerk of Section.

ABSTRACTS.

ABSTRACTS FROM RECENT OPHTHALMIC LITERATURE.

BY G. E. DE SCHWEINITZ, M. D., AND E. A. SHUMWAY, M. D.

Concerning Epiphora as an Initial Symptom of Basedow's Disease.—E. Berger (*Arch. f. Augenheilk.*, Nov., 1902) gives the histories of four cases of Basedow's disease, in which epiphora was the initial symptom. Such cases have been reported by other observers, and variously attributed (1) to the wide palpebral fissure, which by the irritating action of the air upon the greater area of exposed eyeball, produces an increased secretion of tears; (2) to the lessened number and incomplete character of the winking motions of the eyelids, which makes the drainage of tears incomplete; (3) to an irritation of the sympathetic, increasing the flow of tears. That the first two theories do not apply in all cases is evidenced by Berger's cases, as in two of them the epiphora was an annoying symptom long before the other signs of the disease appeared, while in the other two, there was neither widening of the palpebral fissure, nor lessening of the lid movements. He believes that the condition is to be considered as a secretion neurosis, and that it is similar to the increased perspiration, to the polyuria, etc. The lachrymal gland is supplied by two nerves—the trifacial (Goldzieher), to which the lachrymation due to psychical emotions is to be ascribed, and by the sympathetic (Dementschenko and others). The secretion of tears called forth by the trifacial, is to be explained as a reflex transference of sensory irritation to the vasomotor fibers of the gland (arising from the sympathetic). The assumption of a vasomotor neurosis for the explanation of the epiphora in Basedow's disease, is in accord with the usual interpretation of a number of the other symptoms as due to the sympathetic. In the treatment of the condition Berger advises constitutional treatment alone, and deprecates the use of sounds and injections of astringent lotions. Extirpation of the palpebral gland is also not to be advised, as a decrease of the tear secretion in the further course of the disease is very frequent, and the annoying feeling of dryness of the eyes would be greatly increased by the operation. In very obstinate cases instillation of cocain in the conjunctival sac, or atropin internally (which decreases the secretion of acinous glands) might

be tried. In the later, dry conditions of the conjunctiva, he has used instillations of physiological salt solution, several times daily, with satisfactory results.

Contribution to the Study of the Differential Diagnosis Between Glioma and Pseudo-glioma Retinæ.—Julius Fejér (*Archiv. f. Augenheilk.*, Nov., 1902) reports an important case illustrating the difficulty in certain cases in making the diagnosis between glioma and pseudo-glioma. In a backward, rachitic child, of 4 years, examination of the apparently blind left eye showed a yellowish reflex through the pupil, detachment of the retina, with atrophic patches, in places surrounded with pigment scattered over its surface. The eye was free from inflammation, and the tension normal. In the right eye the entire fundus was covered with various sized atrophic areas, involving the choroid and retina. The media on both sides were clear. Three weeks later photophobia and lachrymation began, the pupil was dilated and the tension was found to be increased to +1. Enucleation was advised, as an intraocular growth was suspected. This was refused and the patient taken to Fuchs' in Vienna, who considered "the yellowish white spots in both eyes to be the beginning of a glioma, especially as increased tension has appeared on the left side." The diagnostician not being absolutely sure, he advised waiting, and roborant treatment. After several weeks the eye became softer, and the ciliary injection disappeared, the child grew stronger, and six months later Fuchs thought that there was no longer any danger from tumor. After an observation period of $11\frac{1}{2}$ years the tension was normal, the tumor was atrophic and smaller, and the other patches in the fundus had become paler. The condition of the fellow eye remained the same, except that the yellowish white spots had paled perceptibly. The fact that glioma may begin in the form of white plaques, scattered through the retina, makes the interpretation of such cases difficult. Here, however, the facts that the spots were not elevated, that they were surrounded with a pigment border, which is absent in beginning glioma, that they were diffusely scattered over the fundus, instead of being in groups, and that the retinal vessels passed in an uncurved line over their surface, made the differentiating points. The fact that in the course of $11\frac{1}{2}$ years they had not grown, but had become paler and whiter, made the diagnosis a certain one. Schick reported a similar case in 1900, in which masses of exudate, which he considered fibrinous in character, formed between the choroid and retina, and did not change in the course of $13\frac{1}{4}$ years.

EDITORIAL.

THE ROLE OF THE TOXINS IN INFLAMMATIONS OF THE EYE.

This is the title of a paper by R. L. Randolph published in the *American Journal of Medical Sciences*, Nov., 1902. It represents a large amount of experimental work of a kind unfortunately rare among American ophthalmologists, and we are glad to see that it has been awarded the Boylston prize. After reviewing the few papers previously published in Europe on the subject, Randolph describes the effects of the toxins of the gonococcus, staphylococcus aureus, the diphtheria, and the colon bacillus when instilled into the conjunctival sac of rabbits; then the results of the same and other toxins when injected under the rabbit's conjunctiva; then the effects of the toxins when injected into the anterior chamber. There is also a brief account of the bacteriology of the rabbit's conjunctiva based upon forty-seven experiments. These show that the normal conjunctiva of the rabbit, like that of man, is probably never sterile and that, as in the case of man, the staphylococcus albus is commonly, if not always, present. We miss, however, any mention of the xerosis bacillus which is so common in the human conjunctival sac and would suggest that these experiments should be repeated with serum as a culture medium instead of agar, as this germ, in the experience of the reviewer, frequently fails entirely to grow upon ordinary agar. The results of the experiments with toxins are summed up as follows: (1) "Bacterial toxins, so far as tested, when instilled even for many hours, into the healthy conjunctival sac were found incapable of causing inflammation or producing other injury. (2) The same toxins when injected into the tissue of the conjunctiva or into the anterior chamber invariably set up local inflammation, the extent and intensity of the inflammation varying to some degree according to the species of bacterium yielding the toxin. (3) Bacteria which had not previously been proven to produce soluble toxins were found to produce them even in young cultures and it is suggested that injections of bacterial filtrates into the eye, particularly into the conjunctival tissue, constitute a more delicate biological test for the detection of certain toxins than the tests usually employed for his purpose. (4) The experiments recorded in this paper furnish additional examples, in a comparatively new field, of the importance of toxins in explain-

ing the pathogenic action of bacteria, and likewise emphasize the etiological significance of injuries of the covering membranes of the eye in favoring the action of toxins and of bacteria."

It should be noted that Randolph's results are opposed to the investigations of Moxax and Elmassian and of Coppez, in so far as they relate to the instillations of toxins into the conjunctival sac, as these observers obtained positive results, the former with the conjunctiva, the latter with the cornea; and in view of the well known immunity of the rabbits' conjunctiva to the action of the germs, ordinarily pathogenic for the human eye, it may well be that more positive results would be obtained on the latter than, where, as in Randolph's work, rabbits alone were used. H. G.

NOTES AND NEWS.

ITEMS FOR THIS DEPARTMENT SHOULD BE SENT TO
DR. BROWN PUSEY, 31 WASHINGTON ST., CHICAGO.

PHOTINOS PANAS,
BORN JANUARY 30, 1832,
DIED JANUARY 6, 1903.

Dr. E. Emmert has been appointed professor of ophthalmology at the University of Berne.

Drs. Henry M. Harrison and Frank T. Brennan have been appointed ophthalmologists to St. Mary's Hospital, Quincy, Ill.

Dr. I. Herrnheiser, formerly editor of the *Prager Med. Wochenschrift* and privat docent of ophthalmology at Prague, died recently in that city.

According to the will of the late Isaac T. Carpenter, upon the death of his sister the New York Eye and Ear Infirmary will receive \$1,000.

Over 145,000 copies of Dr. Gould's Medical Dictionaries—The Illustrated, The Student's, The Pocket—have been sold within the past few years.

Dr. Wendell Reber has been appointed to the position of dispensary chief in the German Hospital in Philadelphia, succeeding the late Dr. Edmund K. Perrine.

Dr. Adolf Szili, professor of ophthalmology in the University of Buda-Pesth, has received the honor of hereditary nobility in recognition of his services to public health.

Drs. Swan M. Burnett, D. Kerfoot Shute, William Butler and E. Oliver Belt, have been appointed ophthalmologists to the Government Hospital for the Insane, Washington, D. C.

The post-graduate course to be given the coming spring and summer by the Faculty of the College of Physicians and Surgeons of Baltimore is under the direction of Dr. Harry Friedenwald.

In the February number of the *Popular Science Monthly* Prof. Wesley Mills, of McGill University, in an article entitled The Behavior of Blind Animals, records observations made on blind pigeons, rabbits, rats, cats and a dog.

The Wills Hospital has applied to the Pennsylvania state legislature for financial help. The income from its invested funds has been so materially reduced by the lowering of interest rates, that its utility has been very much impaired.

At the sixth annual reunion and dinner of the Associated Alumni of the Mount Sinai Hospital, New York, addresses were made by Drs. Emil Gruening and Percy Friedenbergl. Dr. Edward Friedenbergl was elected president for the next year.

In the March and April numbers of THE RECORD Dr. Albert Hale will contribute two articles illustrated, on some of the eye hospitals of Europe, and will conclude in the May number with a description of last year's Heidelberg Congress and a comparison between foreign and American ophthalmology.

The Eye, Ear, Nose and Throat Hospital of New Orleans, La., has purchased a lot in the central part of the city, which will be held as a site for the erection, at some future time, of a new hospital. A central location is desired, so that the hospital will be more accessible for the poor and nearer the medical schools and other hospitals.

It has recently been announced that Sir Ernest Cassel has given the sum of \$200,000 for the investigation of ophthalmia and other eye disease among the natives of Egypt. It is intended

to train native medical men in the diagnosis and treatment of diseases of the eye, for only native physicians can induce the poor Egyptians to learn cleanliness.

Dr. de Schweinitz has appointed as assistant surgeons in his service at the University of Pennsylvania: Dr. John T. Carpenter, Dr. Howard Mellor, Dr. A. G. Thomson and Dr. Edward A. Shumway. Dr. Mellor remains chief of the dispensary and Dr. Carpenter is the instructor in ophthalmology. The course has been changed, so that attendance on ward classes and clinics is made obligatory for the whole class, instead of elective, as before.

The will of the late Dr. Bushrod James, of Philadelphia, devises \$55,000, several pieces of real estate in that city, and several lots Island Beach, N. J., to the city of Philadelphia for the purpose of establishing a free hospital for the treatment of diseases of the eye and ear. The will directs that the proposed hospital be called the Washington James Eye and Ear Institute, and that the \$55,000 be invested as an endowment fund.

At the Ninety-seventh Annual Meeting of the Medical Society of the State of New York, held at Albany, January 27, 28 and 29, the following papers were presented:

Retinoscopy, by Dr. D. H. Wiesner. The Physician and the Ophthalmoscope, by Dr. Francis Valk. Treatment of Purulent Conjunctivitis, by Dr. Edgar S. Thomson. Transportation and the Ophthalmic Referee, by Dr. Justin L. Barnes. Eye Strain and Headache, by Dr. Lucien Howe.

At the Western Ophthalmologic and Oto-Laryngologic Association meeting, to be held in Indianapolis, Ind., April 9, 10, 11, 1903, the following papers will be read in the Ophthalmologic Section: "Episcleritis," by Dr. Adolph Alt; "Keratoconus: Etiology, Early Diagnosis and Treatment," by Dr. J. A. L. Bradfield; "Some Experiences in the Operation for Complicated Cataract," by Dr. J. E. Brown; "Hysterical Amblyopia, with Report of Cases," Dr. A. E. Bulson, Jr.; "Clinical Experiences in the Management of Phoria Patients: Failures and Successes," by Dr. J. Elliot Colburn; "Degenerate Ocular Changes Resulting from Consanguinity of Parents," by Dr. Lee Wallace Dean; "Electro-Cautery Treatment of Wounds and Ulcers," by Dr. John A. Donovan; "Series of Glaucoma Cases,"

by Dr. Geo. F. Fiske; "On Some Points in the Operation for Cicatricial Ectropion," by Dr. Ferd. C. Hotz; "Blepharitis Marginalis," by Dr. Dudley S. Reynolds; "Sarcoma of the Choroid," by Dr. W. S. Samson; "Rare Ocular Lesions in Scarlatina," by Dr. E. O. Sisson; "The Influence of Environment on the Eye," by Dr. Hamilton Stillson; "Paresis and Paralysis of the Muscle of Accommodation," by Dr. Geo. F. Suter; "Monocular Triplopia," by Dr. Cassius W. Wescott; "Retrobulbar Optic Neuritis," by Dr. W. H. Wilder; "Exsection of the Tarsus in Certain Forms of Chronic Trachoma," by Dr. Casey A. Wood.

The Use of Spectacles in the British Army.—It seems, says the *Lancet*, October 25, that we are henceforth to become accustomed to what has hitherto been a rare sight in the army—many spectacled soldiers. From a paragraph in the *Army and Navy Gazette*, October 18th, we learn that it has been proposed to issue spectacles to such soldiers of the British and native troops serving in India as may require them, to correct defects of vision. Medical officers have, our service temporary understands, been called upon to report how many men will require glasses, and the probable cost per annum involved thereby. Meantime, in order to carry out these instructions, the optical means of testing the vision of British and native soldiers in India will presumably have to be issued.—*Medical Record*, January 17, 1903.

Dr. George M. Gould's "Biographic Clinics: The Origin of the Ill-health of DeQuincey, Carlyle, Darwin, Huxley and Browning," of which an advance description was given in the November *Medical Book News*, should excite considerable interest among medical men, for whom, by reason of its originality of research, etc., it possesses especial value and attractiveness. The book is now announced as ready by its publishers, Messrs. P. Blakiston's Son & Co. Its price is one dollar.

Dr. Gould has entered a new and strangely fascinating field. He has gathered from the biographies, letters and writings of DeQuincey, Carlyle, Darwin, Huxley and Browning every reference to their ill-health; and undertakes, scientifically and logically, to enlighten his readers as to the cause of their affliction. This cause, Dr. Gould claims, was the same in each case. To the attending physicians, however, it remained a mystery, no explanation explaining and no cure curing.

It is a peculiar fact that the letters and other writings of De Quincey, et al, liberal as they are with references to the continued ill-health of the quintette of great writers, have not before this suggested to the medical profession an opportunity for research into the causal factors of those physical conditions. That the opportunity has not until now been recognized in its proper light is evidenced by the hitherto total absence of any work dealing with this subject. "Biographic Clinics," should, therefore, prove a most unique and valuable contribution to biographical and medical literature. It is interestingly written, and will undoubtedly meet with a ready sale.—*The Medical Book News*, anuary, 1903.

The trial of the wood alcohol poisoning case in the Baltimore court was the leading medical feature last week. The court refused to admit the analysis of Jamaica ginger made by the drug firm two years after the alleged poisoning. He also refused to take the case from the jury and decide it himself. A former employe of the drug firm testified that the latter used wood alcohol in the preparation of Jamaica ginger from 1897 to 1900, the proportions used being: Wood alcohol, 30 per cent; grain alcohol, 50 per cent; and water, 20 per cent. The attorney for the defense acknowledged that this proportion was correct, and that in the three years 65,376 bottles of the preparation were placed on the market. Drs. Herbert Harlan and Hiram Woods testified that Dr. Brehm's loss of sight was due to wood alcohol. Dr. Chas. A. Crampton, a government chemist employed in the internal revenue department, W. A. Puckner, professor of pharmacy in the University of Illinois, and F. P. Kuehne, a manufacturer of flavoring extracts at St. Louis, testified that wood alcohol, in their opinion was not poisonous.

The Brehm suit continues to excite deep interest. The experts for the defendants have contradicted the statements of the ophthalmologists, and testified that purified wood alcohol or Columbian spirits is no more poisonous than grain alcohol. Frederick T. Gordon, a pharmacist in the navy, testified to having taken one ounce twice a day. He also fed a cat a teaspoonful daily for over a month without harmful results. Dr. E. L. Whitney had taken one and one-half ounces of Columbian spirits in three hours without bad effect. A special feature was the drinking in open court of two ounces of Columbian spirits by Mr. William E. Gilbert, one of the defendants. It was freely diluted with water, and no apparent ill effects were experienced. The counsel began arguing the

case this week.—*Journal of the American Medical Association*, Jan. 31, Feb. 7, and Feb. 14, 1903.

Methyl Alcohol Blindness.—The trial of the suits against a Baltimore drug firm for blindness due to the use of methyl or wood alcohol instead of grain alcohol in the manufacture of essence of Jamaica ginger, began in the superior court, January 22. The first suit for \$30,000 was brought by Dr. Geo. A. Brehm, of Rolandville, who claims to have been made entirely blind two days after drinking three bottles of the essence of July 27, 1898. He bought the preparation from a storekeeper on Elliot's Island, Dorchester county, where he then lived. Dr. Reid Hunt and Dr. Henry P. Hynson, druggist and ophthalmologist, testified.—*Journal American Medical Association*, January 31, 1903.

Ophthalmo-Oscillatory Ophthalmotology for Inter-Ocular Diseases.—There lies before us a circular, noteworthy because of a number of qualities, the linguistic and scientific being the chief. As to the last we have this statement:

"The master minds in the field of ophthalmotology, both in Europe and this country, have worked upon the theory that to stimulate the interocular circulation, rebuild the capillaries which become inactive in the interstitial tissues of the nerve papillas of the retina, nutrition would become active and the retina would again respond to the action of light."

It required 20 years for the "gentleman of high medical standing" to devise a couple of little glass cups placed over the eyes whereby the eyes are drawn outward when a vacuum (and no hyphen between those two u's nor any diereases over them!) is created, etc., and the oscillation causes a regular vibration of the optic nerve. Among other "inter-ocular diseases" we are assured that "cortical opacity of the lens is most successfully treated." Also the other inter-ocular diseases, "glaucoma, choroiditis, retinitis, atrophy"—these also "can be cured." "No one discovery since Holtzholm gave the ophthalmoscope to the medical world has ophthalmotology received so valuable a discovery." U. S. Senator Money is said to endorse "this wonderful machine," and several doctors are mentioned as having been cured by it of inter-ocular diseases. Money can do wonders, of course, but we fear it is powerless to change the truths of ophthalmotology and of English grammar. Poor ophthalmotology! and the fame of Holtzholm! and the unprotected patients who are exhilarated!—*American Medicine*.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XII. No. 3. CHICAGO, MARCH, 1903. NEW SERIES.

ORIGINAL ARTICLES.

CONFESSIONS OF A TRAVELER.

BY ALBERT B. HALE, M. D., CHICAGO.

Illustrated.

Germany, north and south, with its twenty universities, probably offers to the student the essence of our knowledge of ophthalmology, but it does not follow that all the best men are to be found at the universities, nor that those at the universities are necessarily the best men. They are the teachers, however, and their equipment as teachers or as illustrators of what they teach, is unsurpassed. I say this to advise the traveler or student against the idea that he should visit only the universities if he wishes to obtain an epitome of German ophthalmologic life, or that only at the largest universities will he find the best teaching or the best material. Hamburg, Wiesbaden, Köln, Düsseldorf, are names with which we are familiar, and here there is work done apart from teaching, while in such cities much, especially of a practical character, can be seen as an example of how active ophthalmology is, or how soon the teaching at the universities becomes applied in general experience.

It was my privilege this last summer to visit both kinds of kliniks, and I have tempted the good nature of readers of *THE RECORD* by giving them a few facts in regard to what I have seen, and shall end my narrative by an essay to criticize from my observations and to compare American with European methods without injustice to either side.

HAMBURG.

This gateway for nearly every traveler entering Germany, is a beautiful, well-built and attractive city of nearly 100,000 inhabit-

ants. It has no university and consequently does comparatively little teaching although opportunity is not lacking. Its chief interest is commerce, manufacturing being subordinate, and consequently its clinical material is more in the line of diseases than of accidents. Undoubtedly the best place to visit today is the new hospital at Eppendorf which serves as the Hamburg General Hospital. It lies on the outskirts about 30 minutes' ride by trolley from the center of the city, but thither are brought nearly all the sick and injured to get the advantages of better and quieter surroundings. There are six large, separate buildings for medical, surgical, gynecological cases, for infectious, children's and eye diseases, arranged on the pavilion plan and covering several acres of ground. The Eye Hospital has 150 beds in its three departments for men, women and children. The Director is Doctor Mannhardt who comes daily from Hamburg to make visits about 9:30 in the morning. The resident surgeon is Doctor Treutler who recently resigned an assistantship under Hess at Würzburg. No direct teaching is done here but the material is extensive enough to furnish study for anyone. The character of the diseases is largely that of depressed vitality and infections—conjunctivitis, keratitis (especially among children) fundus anomalies and the usual proportion of cataracts. One can, if one stays long enough here, watch with profit the influence of general and local treatment combined with hospital regime. Of particular interest was Treutler's remark that he at once submitted practically all children with inflammatory conditions to a thorough scraping of the throat and even excision of the tonsils, if indicated. Since doing this, he finds that a child recovers in probably half the time previously required, and he has now adopted the method as a routine.

There is no poliklinik (outpatient department), though one may be established. The equipment for operations, examinations and record keeping, is complete, and estimations of refraction are done carefully and systematically with the retinoscope.

KIEL.

Kiel, with about 100,000 inhabitants is the nearest University for the student entering through Hamburg, and since the establishment there of the Imperial Navy Yards and the construction of the North East Sea Canal, the city has grown rapidly in importance. As it was here that I served my assistantship, I may be pardoned if I think lovingly of the city and the eye hospital there. The city itself is best seen in the early summer, when society frequents it for

ILLUSTRATIONS

MENTIONED IN ARTICLE BY ALBERT B. HALE.



FIG 1 EYE HOSPITAL, HAMBURG (EPPENDORF).

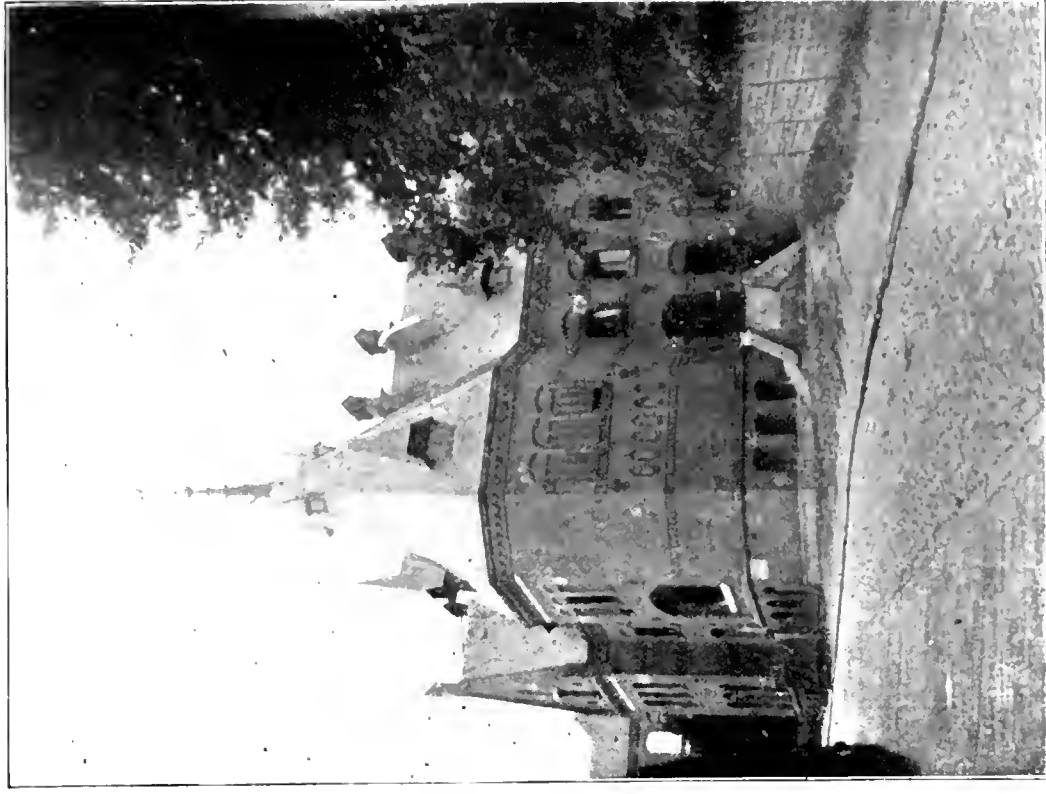


FIG. II. UNIVERSITY EYE HOSPITAL, KIEL.

the yachting in the harbor, the baths, and to escape the depression of the inland heat. Professor Voelckers is the ordinary professor and chief of the hospital, Doctor Rehr, who has been with him over fifteen years, the first assistant. The Eye Hospital is close to the University building and the other kliniks so that the visitor can see the work of several departments in one day. It has sixty beds (but more can be accommodated if necessary) generally fully occupied, and there are from five to fifteen new, twenty to fifty old cases in the out patient department, daily. With the recent influx of laborers one sees here a greater number of trachoma cases than would be expected in West Germany and as Professor Voelckers has an enviable reputation throughout Jutland and the adjacent Danish Islands, the number of operations and unusual cases is interestingly large. Ward visits are made at 9:30 a. m., the new cases examined from 11 to 12, old cases treated from 12 to 1, a clinical lecture is held from 1 to 2, and class operations thereafter. Other operations are arranged at the convenience of the operator, usually, however, after 12 and before 3. The operating room is small but well appointed, although in comparison to the amount of work done here, or with more pretentious kliniks elsewhere, it is modest. A specialty at Kiel is the extirpation of the tearsac, which is performed with perfect art. Plastic operations on the lids are quite usual, and as Professor Voelckers is an advocate of early and deep discission, the dislacerated lens offers an abundant field for study. Few foreigners come to Kiel and the instruction is mostly for undergraduates, so that the experienced practitioner would enjoy chiefly the rare cases in the wards, the delicacy of the operative work and the undisturbed routine of hospital treatment. In fact, all Kiel is conservative, and thoroughness is more the keynote than experiment. Perhaps as great a departure as any from orthodoxy is Professor Voelcker's advocacy of canthotomy is nearly all cases of conjunctival or corneal inflammations especially in children; this he performs with one stroke of the scissors and only one (central, horizontal) suture.

BERLIN.

It is out of the question to try to discuss Berlin with any thoroughness. Its 2,000,000 inhabitants furnish a vast amount of clinical material that is exhaustively utilized, but the city is too large and the kliniks too scattered for the traveler to get the best use of it, so he must pick and choose what he thinks will attract him most. There are so many well-known men at work there, with nearly the same independence that characterizes American ophthalmologic

activity, that a residence of several months would be necessary to acquaint oneself with even the best, and I must therefore confine myself to what I know is of general interest.

The center of medical life is the Karlstrasse, at one end of which can be found the Charité with Professor Greef, at the other, in the Ziegelstrasse, the University Hospital with Professor v. Michel, but recently removed here from Würzburg to fill the vacancy created by the retirement of Schweigger; between them lie the klinik of Professor Hirschberg (semiprivate) and that of Professor Silex so long the energetic assistant to Professor Schweigger. There are other good men in other parts of the city, but they are not accessible without special effort.

Without disrespect to the charité I shall pass this klinik by, merely mentioning the splendid opportunity offered there for pathologic study, for Greef is better known as a pathologist than as an operator. Hirschberg is justly proud of his operative skill and his operating room, and of course anyone interested in the magnet or the controversy concerning it, should not omit seeing the klinik, but the material is of a semiprivate character and as a place in the small operating room is so eagerly sought by foreigners and Germans, and as there are so many assistants and attendants, close contact with Hirschberg is difficult to obtain.

v. Michel left Würzburg just before the completion of the beautiful new hospital there, and he is putting into effect in Berlin the ideas he practically established during his South German professorship. His domain forms part of the large rectangular structure (the University Hospital) containing wings for the various departments. On passing through the common entrance, one may go to the left to v. Bergmann's klinik, or to the right, in front, to the Eye Hospital. There are at present sixty-five beds, to which more will be added so soon as alterations are completed. The operating room is modest but satisfactory; many operations are performed in the ward beds. The ambulance klinik is enormous and requires the utmost effort of ten and sometimes more assistants to handle it. They received last year 46,000 patients! Work in the poliklinik is rather hurried and the stranger must look after himself or be forgotten, though not from any discourtesy so much as from the crowded condition of the rooms. Patients are received here at any time from 9 to 11:30, but about half past ten it is busiest. Visits are made from 10 to 12. Professor v. Michel lectures from 12 to 1, in a familiar hearty way that attracts students. He generally has



FIG. III SILEX (AND JANSSEN) HOSPITAL, BERLIN.

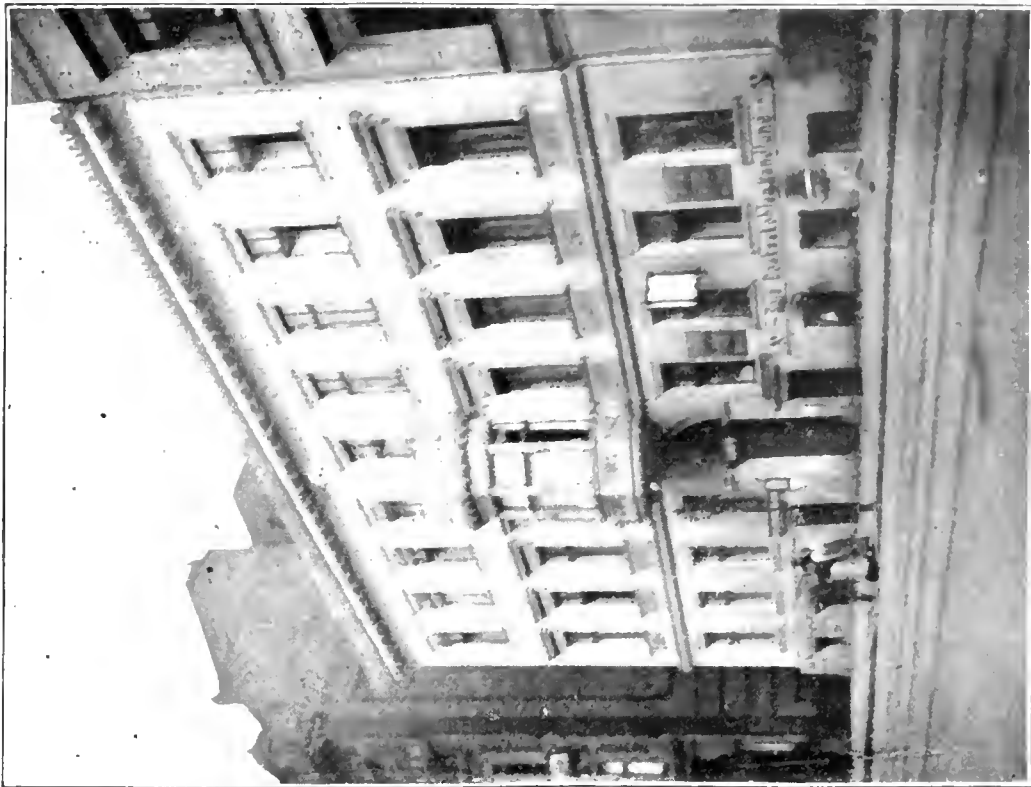


FIG. IV. SILEX (AND JANSSEN) POLIKLINIK, BERLIN.

three or four cases of a somewhat similar character and demonstrates them one after another. He then discusses the pathology at greater length, but does not lay much stress upon treatment. This discussion is followed by illustrations of both gross and microscopic conditions, with photographs and sections used in the dark lantern (projection apparatus), after which the students are invited to examine the actual specimens under the microscopes which are arranged (a dozen or more) conveniently on nearby ledges. Operations may be performed either before, during or after the lecture, according to v. Michel's wish, and it is wise for the visitor to inform himself the day before of the hour selected, or he may not be on time.

v. Michel is in many ways an iconoclast and has delighted in destroying some ophthalmologic traditions that are still alive in other parts of the world. One finds this out by a tour through the wards. After cataract operations, for instance, a binocular bandage is worn for only 24 hours, and thereafter only a monocular or perhaps a simplified Fuchs wire screen. Patients are not kept confined to bed—in fact they may frequently sit up at once after the operation, and make themselves comfortable. The dark room is abolished, as he will have nothing to do with the prison system that so long characterized the eye hospital. He has also developed an earlier feature of the roof garden for every ward—especially for the children, and patients are thrust into fresh air as soon as possible. One often sees there groups of patients cheerfully discussing their ills, in pleasant contrast to the ward life to which most inmates of large city hospitals are restricted.

Undoubtedly as interesting a klinik as any in Germany, because the American sees in it the same restrictions he so often meets at home, is Professor Silex' Poliklinik at 29 Karlstrasse, and next door to it, where most of the operating is done, the small hospital conducted by a Catholic Sisterhood. Silex is extraordinary professor, and as such he does not find his opportunities ready made for him. He has succeeded remarkably well, however, in making them for himself and has as extensive a material as the visitor can assimilate in many a day. He operates early in the morning (from 8:30 or 9 till 10 or 11, according to the amount of work), then attends to patients in the wards and comes afterwards to the laboratory to study and work till it is time to see outpatients, 11:30 to 1. If he lectures, it is from 1 to 2. The operating room is small, scarcely accommodating six persons, and the equipment is of the

simplest, but the results are worth the emulation of anyone with a model hospital back of him. The hospital was not built for such, being simply two large "flats" thrown together, one side being used by Jansen for his ear, nose and throat patients, the other by Silex for the eye. Silex controls about 32 beds, but his operative work ranges over all ophthalmology. The Poliklinik also was the usual German (Wohnung) apartment, adjusted to its present use. At the back is Dr. Pollack's laboratory, unpretentious enough, but vastly interesting if one has the *entrée*. There is real work done here by a master, as all cases in both Hospital and Poliklinik wait the final diagnosis of the microscope. Dr. Pollock gives private instruction and demonstrations both to Germans and foreigners (he speaks several languages) and his collection of specimens, so dear to the American student, is extensive.

Work in the Poliklinik seems hurried—as at home—but someone is always extracting meat from the coconut, and when the report is ready, the traveler will find abundance to satisfy his appetite. It would seem to me that the American would feel more at home, would see more and learn more by a short course under Professor Silex and Dr. Pollack than anywhere else in Berlin. Others may differ from my opinion, but there is this advantage here obtainable no other place, one that appeals directly to every student going from the United States, that in the same building with Silex—the eye—is Jansen—ear, nose and throat—that is, one can find the two specialties in general and very interesting proximity.

BRESLAU.

Breslau, with more than 400,000 inhabitants, lies off the beaten track of the tourist, five hours' by express to the southeast of Berlin, about six hours' east of Dresden. It is therefore seldom visited by the ordinary traveller and retains much of its quiet, easy-going German contentment. Its occupations are largely commercial and it has no intense social or court life to fascinate the visitor. There is plenty to see there, however, and anyone wishing to get a good taste of a German city still uninfluenced by Baedakerism, can be well repaid by a few days in clean, well-built, wholesome Breslau; there is enough outside of the medical life pleasantly to occupy that part of several days not devoted to hospitals.

Breslau is a fascinating name in ophthalmology. Much of the best work has been done there. I need mention only such names as Foerster, who died last spring, Magnus and Cohn who are yet active and honored men, to show wherein we are indebted to her.

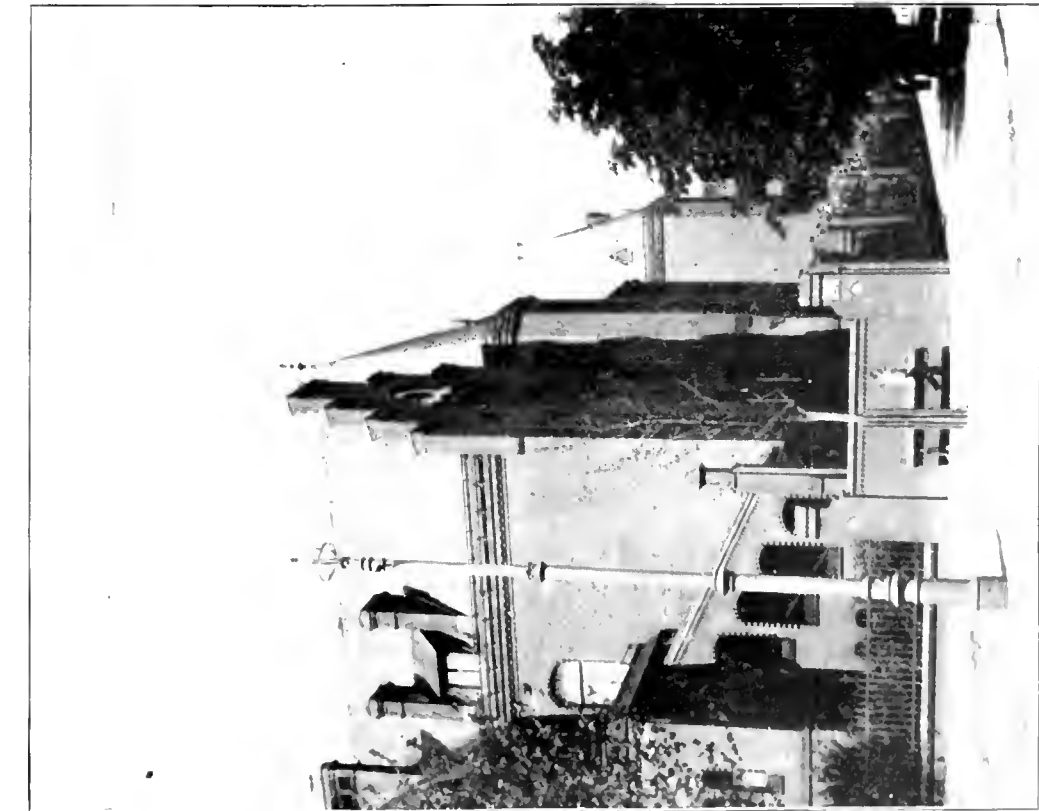


Fig. V. UNIVERSITY EYE HOSPITAL, BRESLAU.



Fig. VI. WOLFFBERG'S EYE CLINIK, BRESLAU.

Today, however, we think first of the new hospital in the Maxstrasse and its Chief Professor Uhthoff with his first assistant, Doctor Heine. The old University* lies not far from the center of the city and is a well built but rather gloomy structure surrounded on three sides by a muddle of houses, while the fourth side lies open to the river Oder. The city and the German educational authorities have, however, here, as in other instances, been farsighted enough to plan for an extensive future and have removed the medical center nearly two miles out from the University in a quite new and unbuilt edge of the city, on the banks of the Oder. Following by trolley the Thiergartenstrasse just before we come to the bridge over the river is the Maxstrasse, which might better be called the hospital street, since it is nothing but hospitals from one end to the other, all new, modern, scientific and practical. Within a minute's walk of each other one may find Mikulicz, Neisser, Kümmel, Czerny, and Uhthoff in that building first on our left, the New University Eye Hospital.

It is worth a trip to Breslau and back to see what the German Government is doing for Ophthalmology, scarce fifty years since Graefe was refused separate beds for his patients in Berlin and had to content himself with barrack-like accommodations for his own special cases. I know of only one word—magnificent—to express the opinion, not alone of this building built in an attractive and a uniform architecture to the others, to be sure, but of its scientific equipment and appointment for examination, treatment and teaching. The klinik was opened about three years ago, it having cost 258,000 marks (\$64,250.00) and can accommodate at least 70 patients, men, women and children.† Here one sees an immense variety of cases, inflammatory, degenerative and operative. The Ambulant Klinik is equally interesting, as one can watch here the history taking, the first application of treatment, the reception into the hospital or the daily treatment of those who either do not need resident service or have been discharged from hospital to return occasionally as the case may require. There are in residence three official assistants of whom Dr. (*Docent*) Heine is the head, but in reality there are a dozen volunteers all German or foreign, and when

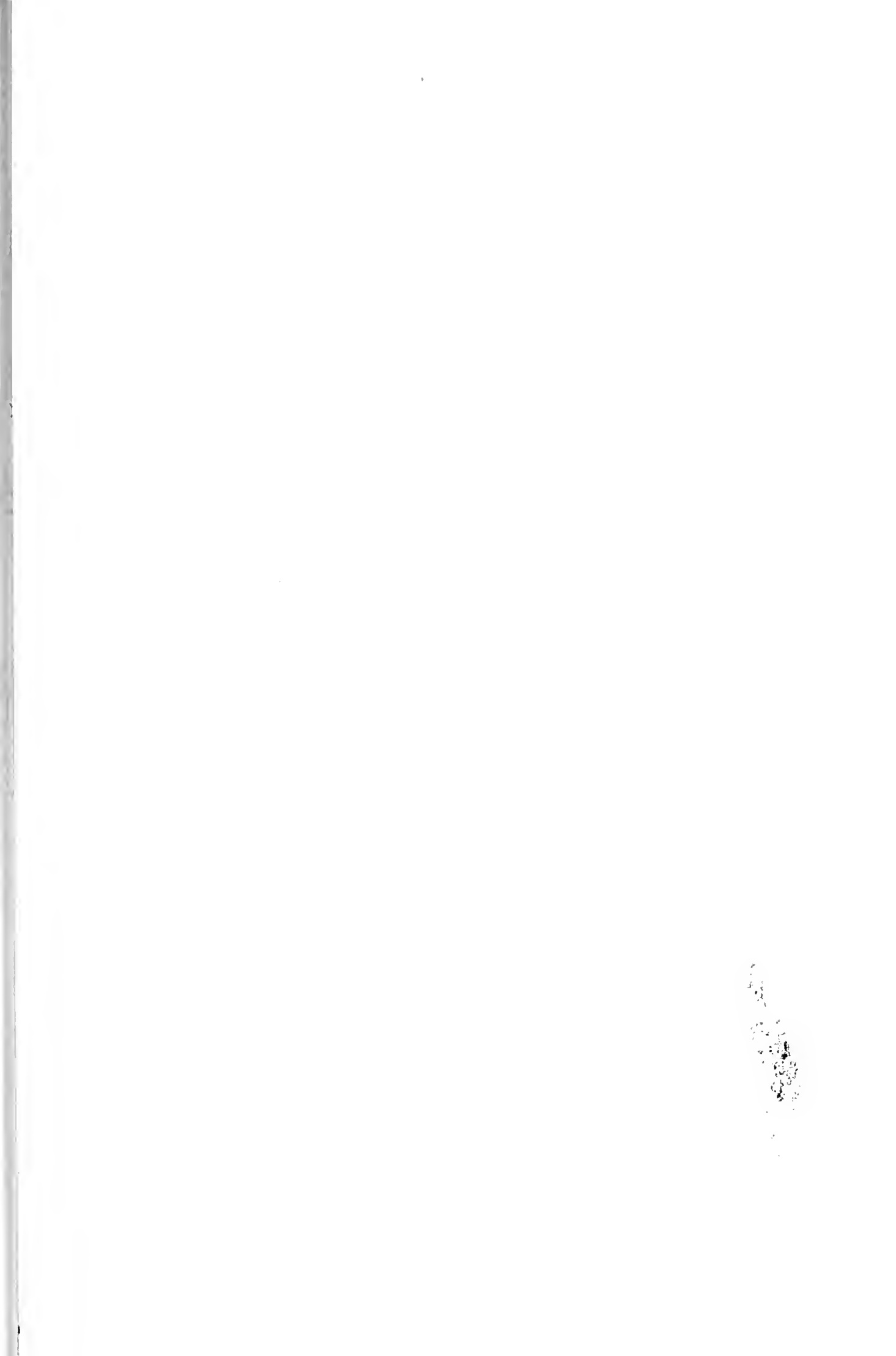
* University in German parlance means what we might call the Administration building; when we ask where some particular work is done, we must specify, as, for instance, the University Library, the Chemical Laboratory, or the University Eye Hospital, for they may be, as in Berlin and Strassburg, they are separated by a mile or more from each other.

†Uhthoff's report *Klinische Monatsblätter*, August, 1901.

I was there the Japanese seemed enthusiastically to have grasped the opportunity to serve in such commodious quarters under a man who is fast becoming known as one of the best teachers in Europe. Visits are made through the wards at 10 a. m.; at about 11 the new cases (10 to 20 daily) are seen by Professor Uhthoff and Dr. Heine first, then after a tentative diagnosis these are turned over to the assistants for a careful examination which includes written histories, pathologic conditions, laboratory findings, visual tests and often field of vision and color sense charts. At 12 the old ambulant cases (30 to 50 daily) are admitted to be treated by Dr. Heine, while at this time many ward cases come to these rooms for further examination. At 1 p. m., during the semester Professor Uhthoff lectures and demonstrates for an hour or more selecting his cases with care and with effort to carry the student systematically from one disease to the other. Operations are usually done after this, but may take the place of demonstrations. The projection apparatus, the microscope and other scientific models, charts or instruments are freely used, while photography plays a decided part in history taking and in teaching. A feature of Heine's work well worth studying are his photographs and stereoscopic views, and his collection of x-ray pictures adjusted for the simple hand stereoscope. Many details hard for the student to understand are thus brought out with exquisite detail: the relation of the brain to the cranium, for instance, or the degree of cupping in chronic glaukoma; and although some of these have already been published in the Atlas series of Neisser (J. Ambrosius Barth), it is a treat to have looked at the originals.

The hospital is beginning to have an unusual number of cases of conjunctival tuberculosis and especially of lupus around the eye, because, due to Neisser's reputation in the Skin Hospital across the Maxstrasse, patients are coming from far and near to submit themselves to treatment. I was surprised not to find a rich harvest of trachoma here, as I fancied that this extreme eastern location, *i. e.*, its proximity to Poland, would make the percentage of this disease unusually high, but I think that one must go to Königsberg (Kuhnt) in the North, to see this protean disease in full bloom.

But the visitor must not be satisfied with this one klinik in Breslau. There is a fine hospital of the Barnherziger Brüder conducted by Dr. Meyer, formerly an associate of Heine's, and a very interesting private klinik under the care of Dr. Wolffberg, the editor of that delightful little *Wochenschrift für Therapie und Hygiene des Auges*. This lies at 9 Frieburgerstrasse at the extreme opposite



ILLUSTRATIONS

MENTIONED IN ARTICLE BY EUGENE RICHARDS LEWIS.

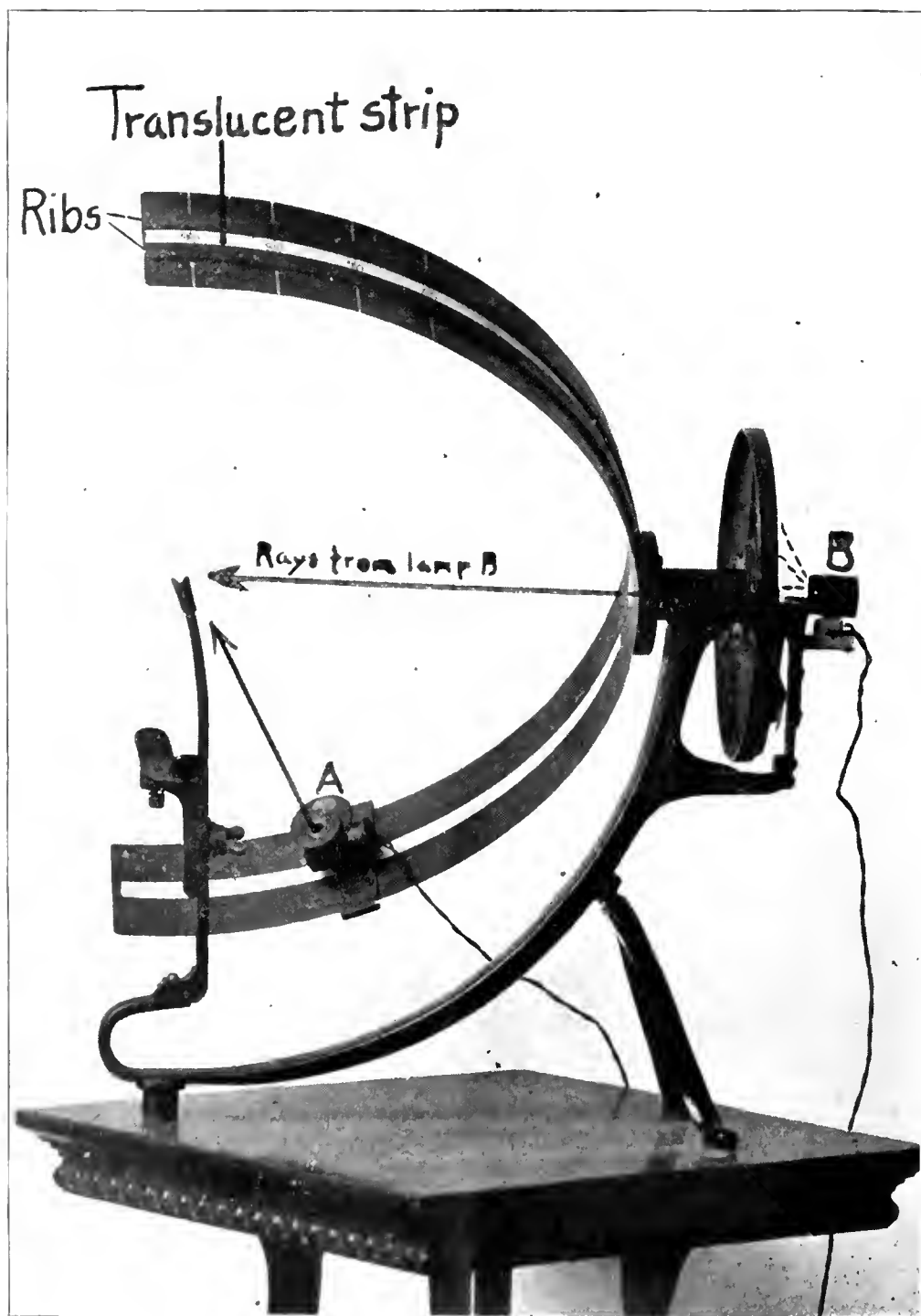


Fig. 1.

side of the town from the Maxstrasse, and has been in existence for years even before Dr. Wolffberg took charge of it. There is no connection between the University and this klinik, which adds to its interest because it is not a teaching center but an example of that large and admirable class of kliniks seen in many cities, where men fully abreast of the times act perhaps in a more personal way than do the professors. In fact the work here reminded me of our own American methods and the obstacles are just such as we meet in our own practice. Wolffberg is a practical man—a sporadic case of Americanism—keen to have everything systematized and in order, always devising a new or neater dressing, trying new drugs (dionin, for example), readjusting himself continuously to his environment, scientific yet dissatisfied with the present if he can devise something better for the future. One sees here individual patients rather than material, and hears complaints in detail just as we hear them at home, and finds that Germans have dislikes and discomforts even as have Americans, a condition often forgotten when we see the military discipline of a large public German hospital. His patients come to a noticeable extent from the Mutual Aid Societies who subscribe for hospital or dispensary service, and all sorts of cases are seen, acute and even chronic, where it is hoped that some skill of the surgeon may, by patient persistence, improve vision disturbed by an acute inflammation.

Wolffberg sees his patients chiefly from 10 to 12 in the morning; he controls about 30 beds, but as his clientele is chiefly private, there is no close distinction between hospital and ambulant cases, and they appear in a common group in the treatment room, or as he may individually summon them.

(To be continued next number.)

A MODIFICATION OF THE PERIMETER, WITH ELECTRIC TRANSILLUMINATION OF THE MIRES.

EUGENE RICHARDS LEWIS, M. D.,

DUBUQUE, IA.

Illustrated.

For the past year I have had in use a modified Hardy perimeter, the mires of which are transilluminated (Fig. 3). Recently I have made some improvements upon the instrument as I had been using it. A description of the improved instrument is as follows. (Fig. 1.)

The movable mire carries a 1 candle power incandescent lamp

fitted within a brass cylinder (Fig. 1-A). (The lamp is easily removed, by slipping off the cylinder base which bears the lamp. This allows changing the lamp in case it burns out.) The cylinder is so placed upon the mire that only two pencils of rays are allowed emission, one going to the patient's eye, the other (Fig. 2, rear view) passing directly backwards upon the perimeter arc. The rays which go to the eye of the patient pass through one of four ground glass discs which are so placed upon a rotating wheel that any one, red, blue, green, or white, can be swung into the pencil of rays, according to the desire of the observer. (Fig. 2.)

The size of the pencil of rays is regulated by an iris diaphragm. (Fig. 2.)

In the middle of the arc throughout its entire length except for a few degrees on each side of the fixation point, the brass is cut away to give place for a translucent strip of celluloid upon which the degrees of the arc are marked (Fig. 1). The second pencil of rays emanating from the brass cylinder, which have been spoken of as passing directly backwards upon the perimeter arc, serve to transillumine this celluloid strip for making the readings during perimetry. (The instrument is used in the dark room.) The celluloid strip is held in place by two ribs (Fig. 1), one on each side, which incidentally serve to strengthen the arc, and which more than supply what loss of rigidity may have been entailed by the removal of the brass down the middle of the arc to make place for the strip of celluloid.

The fixation mire, at the center of the arc, is transilluminated by a second incandescent lamp upon a bracket at the back of the instrument. (Fig. 1, B.)

In the Hardy perimeter there is a tubular opening directly through the axle from the center of fixation to the center of the chart. The second incandescent lamp is so placed at the rear (or chart) end of this tubular opening that some of its rays pass to the patient's eye through the tubular opening, while others of its rays illumine the chart of the field as it is in position on the instrument. (Figs. 1 and 3.) By means of a brass hood (Fig. 3) fitted over this lamp all rays are shut off except those going to the patient's eye and those illuminating a circular area upon the chart, which area is sufficiently large to permit recording the readings. A piece of translucent material (I use bond paper) should be pasted over the center of fixation to soften by diffusion the direct rays from lamp to eye.

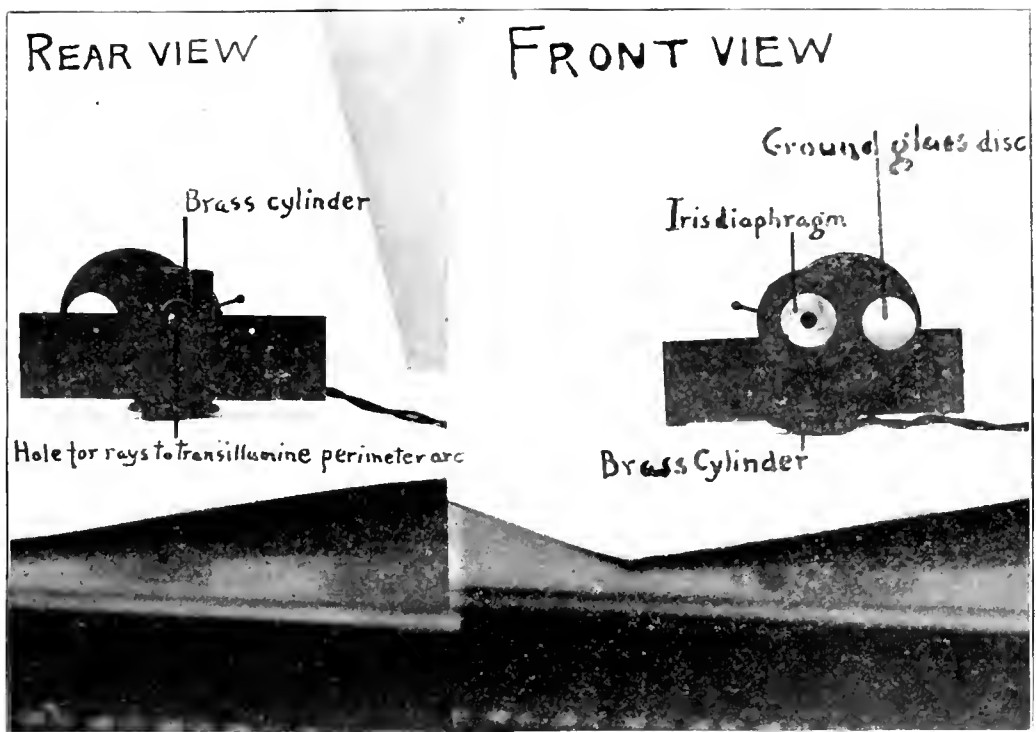


Fig. 2.

Fig. 3.

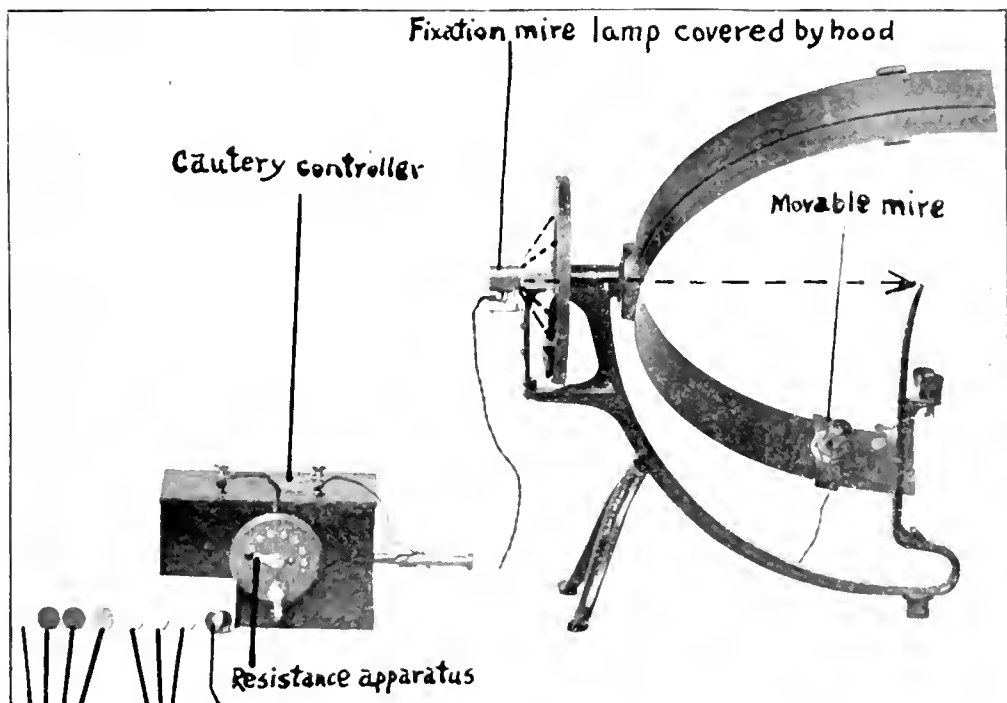


Fig. 1B.

Fig. 1A.

In the dark room it is impossible for the patient to see anything at all except the two transilluminated points, and no such subjective errors occur as mistaking the observer's finger tip, or a brightly reflecting point on the surface of the arc, etc., for the movable mire in the periphery of the field.

By means of a current controller (an ordinary cautery controller) the intensity of illumination can be varied, from the faintest glow to white incandescence. This, however, in my opinion, is inadvisable, as I believe that one of the chief advantages of using artificial rather than solar illumination is the obtaining of an absolutely uniform intensity of retinal stimulus, both for light and for color perceptions. By making use of the dark room and artificial illumination, the observer is independent of the variations and limitations of daylight. One of the advantages of the instrument is the improvement over the candle method of taking the field of light projection in cataract cases. It is also well adapted to measuring the angle of a squint. The field for white and the color fields are found to be somewhat larger, measured by this instrument, than as measured by the reflected light method now in use. In marking the limits of a scotoma, much greater accuracy of definition can be obtained by using this instrument than by using the mire illumined by daylight. This is particularly noticeable if the iris diaphragm is nearly closed and the room is in absolute darkness.

Though the instrument has not been in use long enough to justify making any great claims for superiority, I believe that, in the respects mentioned, transillumination is an improvement over illumination by reflected daylight, and should be of interest to ophthalmologists.

1110 MAIN STREET.

NOTE.—I am now having made two insulated copper strips for the purpose of doing away with the cord which carries the electricity to the lamp on the movable mire. By this change the electricity will be carried to the moving lamp through two friction contact springs and the two insulated strips.

Fig. 3 shows the instrument as it was before the improvements were made. The ground glass discs and diaphragms were held in place over the end of the brass cylinder of the movable mire by the cap fitting over the cylinder. The arc was not transilluminated and readings were made by turning on a portable incandescent lamp.

CHANGES IN REFRACTION.*

BY S. D. RISLEY, M. D.

Attending Surgeon Wills Eye Hospital, Philadelphia.

In my early experience I had come to believe that, except in the presence of certain more or less well defined pathological conditions, the static refraction of an eye was a fixed or practically immutable quantity. That is to say that where hypermetropia with or without astigmatism, was demonstrated under a rigid paralysis of the accommodation, that later measurements made in the same manner would demonstrate the same static refraction as was found in the first examination. In the routine of practice, when recorrections of ametropia after the lapse of time were for any reason found necessary and a change in the refraction was found, *i. e.*, an increase in the hypermetropia, a diminution or an increase in the amount of astigmatism or a required change in the direction of the axis of the correcting cylinder, I invariably ascribed the change to an error in my first determination. It is probable that many ophthalmic surgeons, myself among the number, are still prone to explain the marked changes which must often be made in the correcting glasses made by a colleague, to careless or inaccurate work. The purpose of this study is to show that this is not necessarily true and that therefore we should view with a broader charity both our own earlier work and that of others working in the same field. I still believe that in the vast majority of instances no change occurs in the static refraction of healthy eyes but that there are numerous exceptions to this rule cannot be open to question. In the following remarks the many interesting and important problems which cluster about the myopic eye and the increase of refraction in the hypermetropic, will be rigidly excluded from consideration, and only those changes noted which, on any conceivable theoretical consideration, do not involve a stretching or distention of the ocular tunics.

The following cases are chosen to illustrate the character of changes had in mind.

Case I. Dr. X. Aet. 38. *Asthenopia*, was carefully corrected under atropia instilled three times daily continued for several days and received the following formula for glasses:

$$\text{O. D.} \quad +1.00 \text{ } \bigcirc \text{ } +0.62 \text{ c. ax. } 75^{\circ}, V = 6/V1.$$

$$\text{O. S.} \quad +1.00 \text{ } \bigcirc \text{ } +0.62 \text{ c. ax. } 105^{\circ}, V = 6/V1.$$

The asthenopia was entirely relieved and the glasses worn for five

*Read before the Section in Ophthalmology of the College of Physicians of Philadelphia, February, 1903.

years with perfect comfort. There was then a return of the asthenopia, the symptoms being confined to the left eye. A second careful study, also under a mydriatic, found it necessary to place the axis of the cylinder in the left eye at 135° , the strength of the glass remaining the same. No change in the right. Two years later it was found necessary to change the axis of the right cylinder to 60° and the left to 165° . A year later the axis in the right eye was placed at 45° . He is still wearing after eight years $+1.00 \text{ C} + .62 \text{ c}$, the axis in the right at 45° in the left at 165° with perfect comfort. At no time was there any demonstrable disease to account for the change and no loss in the acuity of vision.

Case II. Dr. T., a busy rural practitioner, Aet. 35, came to me in 1886, suffering from impaired vision and severe asthenopia frequently culminating in attacks of sick headache after a day spent in driving over the hot and dusty roads in the country. There was well marked retinochoroiditis at the macula in each eye which accounted in part for his impaired vision. After prolonged mydriasis, with potassium iodide and bromide internally, the intraocular conditions improved and vision rose to nearly normal acuteness with $+1.50 \text{ c. ax. } 90^\circ$ for each eye. This glass was worn with complete comfort and satisfaction for about five years. He then came complaining of discomfort and indistinct vision with his glasses. A second mydriatic correction gave normal vision with $+1.50 \text{ sp.}$, which objective study also demonstrated as the correcting glasses. These he has continued to wear up to the present time. It is probable that the astigmatism in the first examination may have been produced by nipping the balls between the lids in order to secure a slit between the eyelids and thus to partially exclude the light, strongly reflected from the country roads.

Case III. A. R., aet. 22, clerk, received after prolonged use of hyoseyamine O. D. $+2. \text{ C} + .25 \text{ c. ax. } 90^\circ$

O. S. $+2. \text{ C} + .75 \text{ c. ax. } 90^\circ$

to relieve his asthenopia. He had also marked esophoria at 6m. The glasses were worn with complete relief for one and a half years. He then returned once more in trouble notwithstanding the fact that his work at the desk had been abandoned for out-of-doors employment, demanding much less exacting work for his eyes. The esophoria had given place to slight exophoria and his glasses no longer afforded normal sharpness of vision. The ophthalmometer showed an overlapping of two steps of the mires in the vertical

meridian. A second mydriatic correction gave the following result in each eye:

O. D. +2. \ominus + 1.25 c. ax. 75°

O. S. +2.50 \ominus + 1.50 c. ax. 105° .

Eight years later he again returned with headache and after careful correction received:

O. D. +2. \ominus + 1.75 c. ax. 75° . V. = 6/VI.

O. D. +2.50 \ominus + 2.25 c. ax. 105° . V. = 6/VI.

which he is still wearing.

Case IV. Henry F. aet 7, was first seen in September 1899. His mother is a high myope and has been under my care since her early school life. The father, a hard worked clergyman, has low H. As. The boy had severe headaches, eyes watered in the light or after use at near work. The chorioid was honeycombed and there was present an absorption conus, one-third the width of the disc at the temporal side of both nerves. V = 6/xii in each. After prolonged treatment with a mydriatic the total refraction error was corrected by +1.50 \ominus + .50 c. ax. 90° . The boy was taken from school for a year. Vision was then 6/vii $\frac{1}{2}$ in each eye. He has been kept under observation at regular intervals and has borne his school work without harm or discomfort until January, 1903, when his headache and dread of light returned. On examination under hyoscyanine V. rose to 6/V in each eye with +2.50 \ominus + .50 c. ax. 90° an apparent increase of 1. D in his hypermetropia.

In addition to the class of changes simply illustrated by the examples given, is the large group of patients, usually past middle life, where the axis of the correcting cylinder, usually a low one, sweeps around from an approximately vertical position to the horizontal. Of this I will relate one example. Mr. C. aet. 45, a great sufferer from migraine received +1.50 \ominus + .50 c. ax. 75° in O. D. **and** +2. \ominus + .62 c. ax. 105° for O. S. giving normal acuity of vision. To these were added the required reading segment in the form of bifocal glasses. His asthenopia disappeared for a year or more when he began to suffer occasional recurrences, not relieved by presbyopic corrections. These recurrences growing more frequent and severe, a remeasurement was made, when he selected the same spherical glass but the axis of the cylinders were rotated to 15° and 165° , respectively. A year later the strength of the cylinders required an increase so that at the present time he is wearing

O. D. +1.50 \ominus + 1.25 c. ax. 15° . V. = 6/V.

O. S. +2.00 \ominus + 1.00 c. ax. 165° . V. = 6/V.

This I have seen occur in the presence of increased tension in other cases, indeed this reversal of the cylinder axis I have come to regard with suspicion, but in the case reported there was no demonstrable reason to suspect a threatened glaucoma. The strength of the required cylinder seems to remove the case also from the group of cases where lenticular change could satisfactorily account for it since the total change amounts to 2. D. in each eye. At the first examination both the ophthalmometer and skiascopy demonstrated the correctness of the glasses chosen by the subjective method.

IMPLANTATION OF A BALL OF SOLID PARAFFIN TO
SECURE A PROMINENT STUMP AFTER ENU-
CLEATION OF THE EYE.*

BY FRANCIS W. ALTER, M. D.,
TOLEDO, OHIO.

Formerly Resident Surgeon of the New Amsterdam Eye and Ear Hospital, New York City

Aside from the removal of an otherwise dangerous, painful and incurable focus of disease the great desideratum in enucleation of the eye is to provide a prominent actively movable stump upon which the prothesis oculi can be made to make as nearly the same excursions as its fellow in order that the cosmetic effects may thereby be enhanced and the sufferer be given at least this modicum of comfort.

A number of operations have been made having this object in view, prominent among them may be mentioned the operation devised by Mules which consists in making a complete abscission of the cornea with the adjacent zone of sclera followed by a thorough evisceration of the globe and the implantation of a glass ball, when this implantation is successful an ideal stump is secured but unfortunately in a considerable number of cases despite the most careful closure of the wound sooner or later extrusion of the glass bead follows. Instead of imbedding a glass ball in an eviscerated globe, Frost introduces same into Tenon's capsule after an ordinary enucleation, this on the whole in my hands has been retained more often than when implanted in an empty scleral cavity. Claiborne, Suker and others have engrafted a sponge ball after ordinary enucleation, while the immediate results are brilliant the ultimate outcome is disappointing since the graft usually undergoes absorption.

*Read before the Toledo and Lucas County Academy of Medicine, February 5, 1903.

Instead of glass, balls of silver, gold plated silver, bone and filagree have been used, fenestrated aluminum spheres have also been pressed into service, the latter two as well as the sponge graft having been used with the thought that such material (sponge or filagree) or fenestration would catch and encourage the permeation of granulation tissue and thus aid in the permanent enlargement of the stump and the definite retention of the spheres implanted. None of these devices having been entirely successful it occurred to me to use a ball of solid paraffin basing my conclusions on the perfect innocuousness of paraffin when buried in tissue as evidenced in several nasal deformities which have been corrected by me in the past six months and accordingly I operated a total staphylomatous eye by enucleation. After removal of the globe in the ordinary way a ball of paraffin about one-third the size of the eye was implanted in the empty Tenon's capsule, closure of the wound was made by catching the deep tissues with catgut and suturing the conjunctiva with silk using the well known purse-string method. The paraffin was at first sterilized and then put on ice and allowed to cool in the bottle, when ready to use put in a towel and by tapping with a hammer released from the bottle in a piece large enough to carve out several sizes, using the one which seemed most suitable for the case in hand.

No reaction of any note occurred. Cold applications were kept on at stated periods for several days in order to anticipate any undue reaction. The stump healed kindly and is ideal in size and the cosmetic effect is all that is desired. Solid paraffin possesses the following advantages: First—It is non-irritating. Second—It can be effectually sterilized. Third—It is non-absorbable. Fourth—While it is hard it does not possess the degree of rigidity that glass or other similar substances do and hence it ultimately molds itself to a nicety with the empty Tenon's capsule and thus, Fifth—What is most important, extrusion is less apt to occur.

338 SUMMIT STREET.

A CLINICAL NOTE ON THE TREATMENT OF PANOPHTHALMITIS BY THE METHOD OF VAN MILLIGEN.*

BY WILLIAM ZENTMAYER, M. D.

PHILADELPHIA, PA.

Attending Surgeon Wills Hospital, Ophthalmologist to St. Mary's Hospital.

Any method of procedure which, even though in a small percentage of cases, can so modify or arrest the course of an attack of panophthalmitis, as to secure a useful organ or leave a well shaped though sightless eye, is one which marks an advance in the healing art. Such results have been claimed, and the case to be recorded is confirmatory of this claim, for the method of treatment introduced by the late Prof. Van Milligen and later successfully employed by Rasche. Van Milligen gave to the method the name of Endokulare Galvanakausis. He directed that the edges of the wound be cauterized, after which the wire loop should be introduced into the vitreous, either in an incandescent state or rendered so after introduction and then moved about along the course of the wound. The wire to be inserted to the depth of from 4 to 8 mm., and the cauterization to last from 3 to 4 seconds. He recorded three successful cases. Rasche employed the treatment in three cases. The first was one of gunshot wound of the eyeball. The symptoms were primarily relieved but enucleation was subsequently performed because of the recurrence of the inflammation. A foreign body was found within the vitreous. The second case was one of injury by a rusty nail entering the eye at the sclero-corneal margin. Symptoms of incipient panophthalmitis developed with a yellow reflex from the fundus. The termination was a blind but well formed eye. In the third case, the injury by a kick from a horse, consisted in a rupture of the eyeball. There was protrusion of purulent vitreous. Recovery with V = 5/5.

Roscher, Van Baumler, Eversbusch and others report recoveries from post-operative infection by this treatment.

The history of my own case was as follows: Sallie G., aged 10 years, was brought to Wills Hospital May 3, 1902, because of an injury to the right eye inflicted by a garden implement 5 hours previously.

There was a wound in the ciliary region just below the sclero-corneal margin from which the iris protruded. The child having been etherized the iris was well drawn out and excised. Forty eight hours

*Read before the section on Ophthalmology of the College of Physicians of Philadelphia, February 17, 1902.

later the entire cornea was infiltrated by pus, purulent vitreous extruded from the wound, the conjunctiva was intensely chemosed and the lids greatly swollen. In consultation with Dr. Charles A. Oliver enucleation was first decided upon but later it occurred to me that the case might be a suitable one in which to give the method of Van Milligen a trial and in this Dr. Oliver concurred.

A probe heated to maximum intensity by an alcohol flame was introduced along the course of the wound for a distance of about $\frac{1}{2}$ cm. and the lips of the wound were also cauterized. A Saemisch operation was then performed and the pus evacuated. The lens being found swollen and opaque, was removed. As much iodoform was introduced within the eyeball as could be coaxed in through the corneal wound. Notwithstanding the gravity of the operation at the end of 24 hours the eye looked much improved. There was no relapse, and at the end of four weeks the child left the hospital with an eyeball which had preserved its normal shape. The iris was adherent along the course of the operation wound. Vision equaled light perception. Three months later the patient was brought back to the hospital with blood in the anterior chamber; the mother attributing the condition to a blow. This may have been the case, but a recurrence of the hemorrhage one month later was without assignable external cause. On each occasion the hyphæma rapidly absorbed and recently, five months after the last attack, the eye was still quiet and tension was normal.

The value of the introduction of iodoform into the eyeball in similar conditions has been demonstrated by Haab and others, and the employment of this measure in my case may have contributed to the result obtained. Still I believe that had I had more confidence in "endoculare galvanacvisis," and depended upon this procedure alone, the eye might have recovered with useful vision.

IMPROVED TENDON TUCKER.

BY FRANK C. TODD, M. D.,

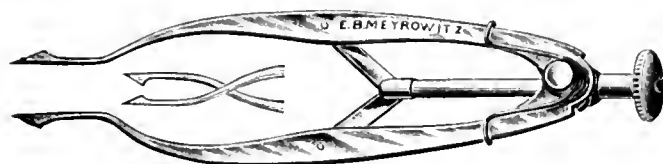
MINNEAPOLIS.

Professor of Clinical Ophthalmology and Otology, University of Minnesota.

Illustrated.

The accompanying illustration represents the writer's improved tendon tucker. There is no change in the principle of the instrument, the prongs are the same as in the former instrument and are used in the same manner in making the tuck; one prong being

entered under the tendon while the prongs are crossed, so that when the prongs are separated the tuck is taken, leaving ample room between the prongs for the insertion of the sutures. The change is in the body of the instrument, and the fact that the screw is



placed where there is more room for it; at the distal end, making the operation of the instrument simpler. This instrument is universal, i. e., can be used on either eye and on the external or internal rectus.

The operation was described in *THE OPHTHALMIC RECORD* for February, 1902.

This instrument is manufactured by E. B. Meyrowitz, New York City, and Chambers, Inskip & Co., Chicago.

HEMORRHAGE FROM THE EYE AFTER CATARACT EXTRACTION.

BY SWAN W. BURNETT, M. D., PH. D.,
WASHINGTON, D. C.

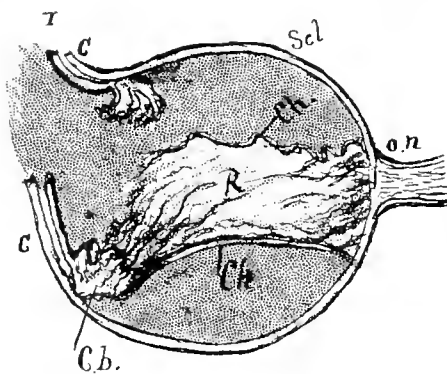
(Illustrated)

Few surgeons of long experience in cataract extraction, I imagine, have escaped the appalling disaster involving the loss of an eye from hemorrhage occurring within a few hours after the operation. A number of such cases have been placed upon record in the journals⁽¹⁾. The history of all recorded cases are strikingly alike. The operation has usually been smooth and without any serious accident, and the patients have for the most part been fairly good subjects with nothing to lead the operator to expect anything but good results. From one to eight hours after the operation the patient complains of pain in the eye associated with nausea which is often accompanied with vomiting. Soon blood is noticed coming from under the dressing, and on removal of the

(1) Dr. J. A. Spalding gives an abstract in more or less detail of nearly 100 reported cases in *Knapps Archivs*. Vol. XXV., No. 1, 1895. Other cases have been reported in the journals since. It seems curious that Snellen in his treatise on Operations in the new edition of *Gräfe and Sämisch* just out merely makes mention of the catastrophe in some 5 lines. Norris in *Norris and Oliver's System*, gives quite a consideration to the matter.

bandage the corneal wound is found to be widely gaping and filled with blood. The eye, without exception, goes on to enucleation or atrophy. A perfectly satisfactory explanation of these cases has not yet been offered. The patients are not known to be "bleeders" and as the accident occurs as well with the simple as with the combined method of extraction a wounding of the blood vessels must be eliminated at a cause. The act of vomiting cannot be considered as the sole cause, for such cases were not apparently more common in the pre-cocain days when a general anesthetic was used and vomiting was a frequent sequella, than now. Individual idiosyncrasy as expressed in the condition of the vascular walls, would appear to play an important role, if one may judge by the fact that in some instances where the fellow eye has been operated upon with every possible precaution the same result has followed.

A single case of this character having fallen to my lot in which the eye was enucleated on the eighteenth day after the accident. It



may not be without interest to report it together with the result of the examination of the globe: M. O. H., a perfectly healthy white woman of 66 years, was admitted to my clinic at the Emergency Hospital for operation on the 28th of March, 1901. There was a cataract in each eye, that of the left having been mature for some months. The tension was normal and the pupillary reaction good; a good result. Simple extraction of the left lens under cocain was made at 1 P. M. on the 29th. The operation was perfectly smooth the incision lying wholly in the cornea. The iris returned promptly and the pupil was round and central when the bandage was applied. The patient was transported on a ward carriage from the operating room to the ward. No complaint was made until late in the afternoon, when suddenly there was pain in the eye with nausea. At 6 P. M. she vomited after the ingestion of a sup of water. Half an hour later the lower edge of the dressing was seen to be stained with

blood. I was sent for and saw her at 8 P. M. On removal of the bandage the dressing was found saturated with blood. When the lids were opened the corneal wound was seen to be gaping to its fullest extent and filled with a blood-clot. The pain had decreased by this time, but a hypodermic injection of morph. sulph. gr. $\frac{1}{4}$ was given at once; bandage reapplied. There was another attack of vomiting at 8:30. During the morning of the 30th there were two other attacks of vomiting after ingestion of oatmeal gruel. On removal of bandage the dressing was found to be bloody and the corneal wound still gaping and filled with a clot of blood.

April 1st. No vomiting since last report; blood still oozing from wound; complains of pain in left side of the head. Some chemosis of conjunctiva, but no signs of suppuration; eye cleansed with boric acid solution.

April 3rd. Chemosis not increased; sleeps well. From this time all the acute symptoms subsided, but as there was still some pain, and in order to avoid a long convalescence, enucleation was advised and accepted. This was done on the 16th, 18 days after the extraction. Seven days later she was discharged from the hospital free from pain.

The eye ball was placed in a formalin solution and after proper preparation was imbedded in celloidin and cut at the Lionel laboratory of the Emergency Hospital. The globe was divided into halves antero-posteriorly the section passing through the apex of the corneal incision and the edge of the optic nerve. The macroscopic appearance of one-half is shown in the accompanying figure. It will be seen that the choroid with the retina has separated from the sclera from the attachment of the ciliary muscles back to near the disk. There is nowhere, in any of the sections made, evidence that the hemorrhage passed through the choroid and retina into the vitreous cavity. The retina R is seen lying as a wrinkled mass in the interior, and still adherent to the ciliary body below Ch. Blood occupies all the space between the choroid Ch and sclera Sel pressing close up to the ciliary body below. Above, the blood has evidently broken through the choroid and retina near the ciliary body and forced itself out through the corneal opening carrying the iris I with it and crowding the retina downward. The choroid below lies stretched smoothly against the blood clot, while above it is thrown into folds at its posterior part. The place of rupture was evidently near the ciliary body above which, as is seen, is driven forward towards the opening. A microscopical examination shows

the choroidal vessels to be filled with blood, but nothing could be discovered revealing the exact location of the hemorrhage. The presumption, however, from the appearances, is that it occurred at or near the ciliary body above.

R. H. Turner, M. D., says (*Therapeutic Gazette*) that at the St. Antoine Maternity in Paris which is under the direction of Dr. Bar, the following treatment of ophthalmia neonatorum is carried out: As a preventive treatment, the genitalia of the mother when she is infected with vaginitis are washed with a solution of permanganate of potash or corrosive sublimate. Immediately after birth, before cutting the cord, the child's lids are carefully wiped with a dry pledget of cotton, and then one to two drops of a 1:150 solution of nitrate of silver is instilled into each eye. The child should not be given a bath, but cleansed with a mixture of equal parts of 90-per-cent alcohol, glycerin, and water.

As a curative treatment the following should be done: Wash out the eye with Kalt's apparatus, using a 1:2000 solution of permanganate of potash. This should be combined with some light cauterizations of nitrate of silver. The unaffected eye should be well protected. Isolate the child completely, and destroy all objects which may be infected. Out of 4,917 children born at the Maternity from March 1, 1897, to July 1, 1901, there were sixty cases of ophthalmia, twenty-four primary and thirty-six secondary, which makes a percentage of 1.22. One-third of these cases were cured in four to five days; in nine cases the disease was more serious, the cornea being affected four times. One was completely cured, two only showed slight specks, and the fourth had almost complete opacity of the cornea.

The *Lancet* of March 7th, 1903, has a two page editorial on "The Relation of Dyspepsia to Eye-Strain," which is based on Dr. Gould's great work, *Biographie Clinique*. An idea of the impression made by this book may be gotten from the following quotation: "It is clear that in every case in which the various symptoms commonly included under the terms chronic dyspepsia and 'biliousness' are present and prove resistant to ordinary treatment, it would be well to obtain the advice and opinion of an ophthalmic surgeon."

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XII, No. 3.

CHICAGO, MARCH, 1903.

NEW SERIES.

REPORTS OF SOCIETIES.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, January 29, 1903.

W. Lang, F. R. C. S., president, in the chair.

Messrs. A. Stanford Morton and J. Herbert Parsons read a paper upon *Hyaline Bodies (Drusenbildungen) at the Optic Disc*, with drawings and notes of two cases and lantern slides.

Out of forty-two cases in the literature seven had retinitis pigmentosa, others were associated with injury, nervous disorders (from simple headache to chronic hydrocephalus and insanity), and chronic interstitial nephritis, but a large number of patients were normal with normal vision. The condition usually commences in early life and is extremely chronic. In nearly all cases both eyes were affected, but often unequally. The prognosis is good. The pathological anatomy of the condition was discussed and various allied conditions demonstrated. It was shown that "Drusen" are not ordinary colloid bodies such as are found upon the choroid though these too may occur near the disc. Exudates similar to the hyaline nodules may become metamorphosed into true bone such as is frequently seen in the choroid in shrunken globes. The fate of exudates in the disc and in other parts of the eye and its dependence upon environment were discussed.

Mr. J. Herbert Parsons read a paper upon *Primary Extradural Tumors of the Optic Nerve with Clinical and Pathological Notes of a case illustrated by lantern slides*. There are eighteen cases on record as compared with 102 cases of primary intradural cases.

The disease usually commences before the age of ten years and the prominent symptom is exophthalmos, the protrusion being most marked in the axis of the orbit. The failure of vision is slow—

slower than with intradural tumors, and is accompanied by optic neuritis of the "choked disc" variety, to be followed by postneuritic atrophy. Later changes in the eye result from lagophthalmos. In no case was the globe invaded by the growth. Eight of the growths were undoubtedly endotheliomata, several having the characteristics of psamomata. The fibromatosis present in most cases is a feature of importance. The growths are slow and of relatively low malignancy, giving rise neither to glandular dissemination nor to metastasis. Considering this fact and that the point of danger is at the apex of the orbit, Kronlein's operation, with retention of the globe is indicated wherever possible.

Dr. Thomas Snowball read a paper on the *Formation of Bone in the Choroid*. Notes were given of a series of seven cases in which ossification had taken place in eyes that had become blind and shrunken as the result of old perforating injuries or long standing inflammation with or without perforation. In the choroid a chronic inflammation with plastic exudation is set up, leading to degenerative changes in the various layers of this coat, the outer pigmented stroma becomes more or less fibrous, the inner layers, the choriocapillaris and membrane of Bruch, are to a large extent replaced by fibrous tissue which has become organized from the exudation poured out towards the inner surface of the choroid. In this fibrous tissue the bone has developed. At the areas of bone formation the choriocapillaris when present is never a continuous layer but is represented by only a few vessels here and there. The lamina vitrea, when seen near the focus of bone, was never found external to it. This is contrary to the observations of Brailey, Fontan and others, who described cases where the membrane of Bruch was seen as a distinct line external to the plate of bone.

In most of his own cases the bone formed a layer in the usual situation, viz., around the optic nerve entrance. In one case where colloid bodies were undergoing ossification, the bone in the choroid had evidently arisen independently of them and was a more advanced stage of development.

In none of the cases was there a trace of sympathetic disease in the other eye.

From a study of his own cases and those described by Knapp, Whiting, Legrange and many others it was concluded that ossification in the choroid arises most commonly in fibrous tissue developing in the choriocapillaris and either replacing it or lying immediately internal to it.

Mr. L. Werner reported two cases of *Tumor of the Optic Nerve* in one of which Kronlein's operation was performed with preservation of the eye, he referred to another also under the care of Mr. Swanzy. The first was a woman aged 43. There had been a swelling of the inner canthus a year before she came under his observation. When seen the left eye was 2 cm. in advance of the right and the eye was pushed downwards. The eye was blind, there was no pulsation or bruit and the optic nerve was atrophied. The diagnosis of tumor of the optic nerve was made and it was removed by Kronlein's operation. The growth did not involve the eye in front, but behind it entered the apex of the orbit and required removing piecemeal. On account of the unsatisfactory condition of the cornea the lids were temporarily united, but they were subsequently opened again. The eye assumed its normal position, though with some impairment of movement. The tumor enclosed in the dural sheath was an alveolar sarcoma, the cells being rather suggestive of its being an endothelioma.

The second was a girl aged 11 whose eye had for 14 months been prominent and divergent. The eye was removed with the growth and the inner aspect of the lid was scraped and the orbit cleared out. This turned out to be a myxosarcoma surrounding the nerve which was entirely degenerated.

Kronlein first performed this operation in 1899. It is not difficult to do and has many advantages over any other. The risks are practically nil and of 70 consecutive cases only one had died. In cases of orbital tumor in which the nerve was not involved the sight might be preserved.

The following card specimens were shown:

Mr. L. Werner. *Coloboma of the Optic Nerve.*

Mr. F. A. C. Tyrrell. *Congenital Malformation of the Lower Lid.*

Major M. T. Yarr. *Changes in the Macular Region following Contusion of the Eye.*

Mr. E. T. Collins. *Case of Favus of the Upper Eyelid.*

Mr. Holmes Spicer. *Sections from Naevus of the Orbit.*

Mr. H. J. Fisher. *Aneurismal Dilatations of the Retinal Vessels in a boy suffering from Heart Disease.*

C. DEVEREAUX MARSHALL, F. R. C. S.

SECTION ON OPHTHALMOLOGY—COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting, February 17, 1903. Dr. Samuel D. Risley, chairman, presiding.

Dr. John B. Turner reported the late history of a case of *Poisoning by Jamaica Ginger*, presenting all the symptoms of toxic amblyopia from methyl alcohol. The man had been under treatment, both in Baltimore and this city, before presenting himself at Dr. Risley's Wills' Eye Hospital clinic. His vision was sunk to one-third; there was concentric narrowing of the fields for form, and much uncertainty in distinguishing colors. No improvement followed treatment by strychnine and ascending doses of potassium iodide. Dr. Turner referred to the reputed chemical changes in the system which methyl alcohol undergoes, one of the products being formic acid, and suggested that this was in all probability the toxic agent.

Discussion.—Dr. Thorington stated that he examined the man a short time after the appearance of the ocular symptoms, and found marked pallor of the discs, poor vision, and the fields much contracted. Under vigorous treatment by iodides, the fields enlarged, and, when last seen, V. = 6/15. Dr. Posey said that he had seen a similar case in a woman, 77 years old, who had taken large doses of Jamaica ginger daily for some months to relieve pain in the abdomen. At the first examination, °. = 5 12 in each eye. There was some pallor of the optic nerves; form fields normal; the red field slightly contracted, with a relative central scotoma for this color. The use of the ginger was stopped, and she was placed on ascending doses of strychnia. In a month's time, V. = RE. 5/6; LE. 5/7 1/2.

Dr. William M. Sweet reported a case of *Injury from a Foreign Body*, and exhibited the eyeball containing a long, narrow piece of steel 14x1.5 mm., which, after passing through the cornea, penetrated the sclera near the posterior pole, 8 mm. of the length being situated inside and 4 mm. outside of the eyeball. The injury occurred while the man was working ship girders with a hydraulic punch. Shortly after the accident he entered the Pennsylvania Hospital, service of Dr. Geo. C. Harlan, and the position of the metal was located by the x-rays. Panophthalmitis necessitated enucleation.

Discussion.—Dr. Harlan thought the specimen was interesting as indicating the accuracy of localization by the x-rays and also

in showing the force with which the body struck the eye. One end was slightly thicker than the other, and it was the blunt portion that had penetrated into the orbit. Dr. Zentmayer referred to an injury following a column of air from an air-compression striking the region of the eye, the force with which it was driven causing fracture of the walls of the orbit and extensive emphysema. Dr. Lamb, of Cincinnati, upon invitation to take part in the discussion, cited the case of a fireman who was struck in the eye by a stream of water from a fire hose, resulting in complete disappearance of the eyeball and leaving only the conjunctiva and the muscles. Dr. Risley related the history of an injury from a piece of steel in which removal of the eyeball was found necessary. Arrangements were made to do Mules operation, but, owing to failure of an assistant to secure a glass sphere, enucleation was performed. The steel, instead of being in the eyeball, was found near the optic nerve, lying imbedded among the ciliary nerves. If the Mules operation had been done, and sympathetic inflammation followed, it would have been ascribed as a failure of the Mules procedure to arrest sympathetic irritations. As evidencing the injury which may result to the ocular structures from concussions, he recalled an instance of complete detachment of the retina following the discharge of a gun close to the side of the head. Dr. Posey said that he had seen a case somewhat similar to that reported by Dr. Zentmayer, the injury following an explosion of a gasoline torch. When seen four weeks after injury the ophthalmoscopic examination was negative. The patient said that the eye was quite red for two weeks following the injury. After the inflammation had subsided, he had a severe pain in the eye, which ran back to the occiput. The next morning he noticed a black spot in front of the left eye as large as and shaped like a pear, which persisted the entire day, being seen slightly above the median line. After a night's sleep, free from pain, the scotoma disappeared. A week later, without apparent cause, the pain reappeared at night, and was followed the next day by the appearance of the scotoma, though smaller than before. The field was normal peripherally. V. = 5/15. Dr. Posey thought the scotoma could be explained by an irritation of the fibers of the optic nerve from interference with the circulation at the optic foramen, due, in all probability, to a hemorrhage into the sheath of the nerve, with or without fracture of the orbit. There was some pain at the back of the eye when the patient blew his nose, but no nasal hemorrhage. V. = normal at the end of two weeks.

Drs. J. Norman Risley and H. G. Goldberg (upon invitation) presented the clinical and pathologic report of a case of *Injury from a Piece of Steel*, the metal being located by the x-rays and extracted by the magnet through a scleral opening near the equator. Enucleation was subsequently required. Pathologic examination of the eyeball showed complete detachment of the retina, except at the nerve entrance and at the opening made in the sclera for the extraction of the metal. In view of the recent contention that incisions in the sclera are prone to result in retinal detachment, the pathologic findings in this case are of interest. A second case of much interest was that of sudden onset of pain in a cataractous eye, with high tension and hyphemia. The radial arteries were atheromatous. The diagnosis was hemorrhagic glaucoma. The eyeball was removed, and the pathologic findings showed the presence of a large sarcoma of the choroid.

Dr. S. D. Risley presented a brief paper on *Changes in the Static Refraction of the Eye Without Notable Pathologic Conditions*. He excluded from consideration the eyes, passing over into myopia through the turnstile of astigmatism and progressive myopia, and gave examples of marked changes in the refraction of patients under his own professional care, the determination in every instance being made under the prolonged use of a strong mydriatic. The differences noticed consisted in changes in the amount of astigmatism in hypermetropic eyes and in the direction of the principal meridians, at times amounting to a complete reversal. One case, aged 35, with a simple astigmatism corrected by cyl. + 1.50 D. axis 90°, returned after several years and a second correction with atropia showed sph. + 1.50, which the patient has worn with comfort for fifteen years. All of the reported examples occurred in patients before middle life. The numerous examples of low grades of astigmatism against the rule coming on in patients past 50 years of age were also excluded from consideration. Dr. Risley suggested that such changes were frequent, and argued a broader charity in estimating the value of one's own work and that of his colleagues.

Discussion.—Dr. Thorington detailed the history of a woman, aged 68, who had never worn glasses, and only felt the need of them for near work a few months previously. OD., V. = 6/6 partly; with sph. + 0.25 = 6/6 partly. OS., V. = 6/xx; with sph. - 1 = 6/6 partly. 2½° of L. H. For near work, sph. + 3 added. Examination 5 years later showed OD., V. = 6/xl; with sph. - 2 = 6/ix. OS., V. + 2/40; with sph. - 6 = 6/ix; L. H. 1½°. For

six months past distance vision had rapidly failed, and near vision comfortable without lenses. Examination showed anterior chambers shallow, tension normal, sluggish reacting irides, and beginning opacities in the nucleus of each lens. The urine showed two per cent of sugar, anti-diabetic treatment having been instituted for ten months. Dr. Harlan believed that the changes in the refraction in the case reported by Dr. Thorington were due to swelling of the lenses, which resulted in myopia, and produced the so-called "second sight." The etiology of Dr. Risley's cases was not so readily explained. Dr. Ziegler thought that much of the asthenopic symptoms which appear after lenses have been worn for long periods, are due to changes in the static refraction, and that disturbance of the muscular apparatus may be an important factor in the cause.

Dr. William Zentmayer presented a clinical note on the *Treatment of Panophthalmitis by the Method of Van Milligen*. The patient, a girl 8 years of age, had received a punctured wound in the ciliary region, causing a prolapse of the iris. An iridectomy was made, but in less than 48 hours there developed symptoms of panophthalmitis, with purulent vitreous exuding from the wound. The cautery was introduced along the course of the wound for a distance of $\frac{1}{2}$ cm., and the lips of the cut were also cauterized. A Saemisch operation was performed, and the pus in the corneal tissue and anterior chamber evacuated. The lens, being found opaque and swollen, was removed. As much iodoform was introduced into the eyeball as could be coaxed in through the corneal incision. Nine months later the eyeball still retained its shape; T.n. V. = 1.p.

WILLIAM M. SWEET,

Clerk of Section.

WILLS' HOSPITAL OPHTHALMIC SOCIETY.

A regular meeting of Wills' Hospital Ophthalmic Society was held at the hospital on the twelfth of January, 1903. Dr. William W. McClure in the chair.

Dr. Frank Fisher presented the history and exhibited a *case of gummata of both orbits* in which the diagnosis was made by exclusion, exploratory incision, and therapy directed towards the dyscrasia. The therapeutic test consisting in the use of mercurial inunctions and tridally doses of one hundred and fifty grains of iodide of potassium for over a period of three months, was followed by complete absorption of the masses.

Dr. William Zentmayer believed that the bilateral character of

the growths with the few remaining indurations situated above the inner canthi, pointed towards an ethmoidal origin. He also stated that as the results of treatment were not marked until about ten weeks after the case was first seen, the rule that six weeks' treatment before operative procedure in undetermined brain cases, might bear exception and probably should be lengthened.

Dr. Charles A. Oliver (through Dr. Homer J. Rhode, the Senior Resident Surgeon of the hospital) presented the clinical history of a case of *gliosarcoma* which had occurred in his clinic, and in which a previous diagnosis of ethmoidal sinusitis had been made and the case operated upon as such at another hospital. Examination of the removed tissues with the microscope at the time of the first visit showed the presence of a tumor-mass which proved itself to be sarcomatous in nature. Later Dr. Oliver operated on the case three times. The eyeball and its adnexa were saved in the first operation, but a recurrence, six weeks later, demanded evisceration preceded by enucleation and exsection of the eyelids. Another return some four weeks after this necessitated an exsection of the orbital masses followed by the local application of forty per cent strength formalin with careful packing; these procedures so far (some two months' time) having given apparent relief. The patient, a female child of six years of age, had been remarkably well and had gained weight and strength since the last operation. Dr. Oliver stated that the patient, as in many of these cases, was very precocious, which condition he considered a bad prognostic sign. He did not have any hope of permanent recovery.

The report of the pathologic findings of the case by Dr. Harold G. Goldberg, the pathologist to the hospital gave an unequivocal diagnosis of small, round-celled sarcoma of the orbit with beginning glioma of the retina.

Dr. Fisher believed that the case was worth watching by reason of the gliomatous involvement of the retina, it having been his experience that the other eye is apt to become involved, and at some time followed by fatal result. Dr. Zentmayer made mention of a case of Dr. Burton K. Chance's in which there had not been any recurrence after a duration of six years.

Dr. Samuel D. Risley (through Dr. Arthur J. Bedell, the Junior Resident Surgeon of the hospital) presented a case of a youth of fourteen years of age who three years previously had been operated upon by Fuchs of Vienna, and in which there had been *recurrences of swellings in the right ethmoidal region*. The case was submitted

for diagnosis, Dr. Risley inclining by reason of the density of the mass, its tardiness of recurrence, and the negative reports as to the condition of the nasal passages, to the belief that the case was one of osteoma of the ethmoid.

Dr. McCluney Radcliffe showed a case of a *growth of the left orbit* in a six year old girl in which proptosis was a prominent symptom, and which in accordance with the history was said to have developed several days after a fall received the day before Christmas. Under ether an exploratory incision was made and a cyst situated posterior to the eyeball was ruptured. The proptosis was immediately less marked after the procedure. The case was being treated expectantly.

In the discussion of the case Dr. William W. McClure stated that it was curious to notice how long such a condition could exist without the family and the friends being aware of it. He also referred to cases of monocular blindness of which the patients themselves had not noticed any loss of sight. He thought that while cysts and other conditions might be of rapid development, yet it was doubtful if this condition had not existed longer than stated. Dr. Rhode stated that Dr. Oliver had from the first believed the case to be one of sarcoma.

Dr. Radcliffe gave the details of the history of a *case of amblyopia* in a thirty year old subject in whom temporary improvement followed large doses of strychnin. There were not any coarse symptoms, while the regular habits of the patient without any history of venereal disease made the case interesting from both its etiologic and therapeutic standpoints.

NOTES AND NEWS.

ITEMS FOR THIS DEPARTMENT SHOULD BE SENT TO
DR. BROWN PUSEY, 31 WASHINGTON ST., CHICAGO.

The estate of the late Dr. David Little, of Manchester, England, amounts to almost \$500,000.

At the University of Cracow, Dr. Majewski has been recognized as privat-docent of ophthalmology.

Dr. W. Uhthoff, professor of ophthalmology in the University of Breslau, will give an address before the section of Ophthalmology of the American Medical Association at New Orleans.

Dr. A. Duane was elected Chairman of the section, and Dr. H. H. Tyson was re-elected Secretary, at the recent annual meeting of the Ophthalmic Section of the New York Academy of Medicine.

Dr. M. Uribe Troncoso of the City of Mexico, Mexico, was recently elected Vice-President of the Mexican Ophthalmological Society and President of the Antonio Alzete Scientific Society.

The Bronx Eye and Ear Infirmary is the name of a new hospital in New York City. It is located at 660 East 142nd St. Drs. C. H. McIlwaine and E. M. Raynor are on the Board of Directors.

In the Boston Medical and Surgical Journal of March 12, 1903, there is a very interesting letter from Dr. George S. Derby on The Study of Ophthalmology in Freiberg. For some time Dr. Derby has been an assistant to Prof. Axenfeld.

At the annual banquet of the ex-resident physicians of the University Hospital, of the University of Pennsylvania, held February

28th, Dr. John Carpenter discussed "The ex-Resident as a Specialist." Dr. Geo. E. de Schweinitz was elected president.

At the meeting of the Section of Ophthalmology of the College of Physicians of Philadelphia, held January 20th, Dr. S. D. Risley was elected Chairman, and Dr. W. M. Sweet was re-elected Clerk. The Executive Committee consists of Drs. G. C. Harlan, W. C. Posey and W. M. Sweet.

Mrs. Ann Augusta Thomas, widow of Gen. Samuel Thomas and her children, Edward R. Thomas and Mrs. R. Livingston Beeckman, have given \$50,000 to the Manhattan Eye, Ear, and Throat Hospital. It will be used to endow a ward of ten beds, to be known as the "Samuel Thomas Memorial Ward," in the proposed new building.

The trial of the wood alcohol poisoning case, in the Baltimore Superior Court, resulted in a disagreement of the jury. The jury stood nine for Dr. Brehm, the blind plaintiff, and three for the drug firm. Four other cases are pending, three for blindness and one for death, alleged to have resulted from drinking essence of Jamaica ginger containing wood alcohol.

The Sixth Annual Report of the Episcopal Eye, Ear and Throat Hospital of Washington, D. C. (for the year 1902) shows that 1880 new eye patients were treated during the year. These patients made 6,814 visits, and on them 313 operations were done. The directors propose building a new hospital and for this a suitable lot, and most of the money necessary, have been contributed.

The New York Eye and Ear Infirmary, was the scene of a strike on February 28th, on the part of nine graduate nurses. It is stated that the recalcitrant nurses objected to certain changes introduced by a newly appointed assistant to the chief nurse, and after presenting their individual resignations, which the authorities declined to accept, they left in a body. (N. Y. Medical Journal, March 7th, 1903.)

The College of Physicians and Surgeons of New York announce for the summer of 1903 an extensive series of courses in medicine, for the benefit of practicing physicians who desire opportunities for additional study and investigation, as well as for that of properly qualified students of medicine and surgery. Instruction will begin on Monday, June 1st, and will continue until Monday, August 24th. The work in ophthalmology will be under the supervision of Drs. Claybourn, Holden and Tyson.

Wood Alcohol in Jamaica Ginger—According to a report recently made by Dr. J. A. Deghoree, chemist to the Health Department, wood alcohol, instead of ethyl alcohol, was found to have been used in the preparation of Jamaica ginger and spirit of ammonia in 40 out of 215 samples purchased of New York druggists. As a result of this, one arrest has already been made, and proceedings are to be instituted against a considerable number of other pharmacists. (Boston Medical and Surgical Journal, Feb. 26th, 1903.)

Dr. William H. Wilder will contribute a paper on "The Influence of Resection of the Superior Ganglion of the Cervical Sympathetic in Glaucoma" at the symposium on the influence of the cervical sympathetic nerve on the eye, which will be held in the Ophthalmic Section at the next meeting of the American Medical Association. He proposes making a statistical report, and has sent a circular letter to many ophthalmologists, in which he requests the records of any cases that have not been reported. If this circular has not reached anyone who has had such a case, we would be very glad to have one forwarded.

The medical inspectors of the schools of Prussia did not find a single school in which less than 5 per cent. of the children were affected with granular lids. In the villages the proportion averaged 20 to 48 per cent., and at one place more than half the children were affected. Raehlmann states that more than half a million persons suffer from trachoma in three provinces alone. The government appropriates every year \$87,500 to fight it, but still more energetic measures are demanded by the Berlin medical press. (Journal of the Amer. Med. Ass'n.)

At the meeting of the Medical Society of the County of New York held January 26th, 1903, Trachoma was the principal subject under discussion. The subject was divided among the speakers of the evening, Dr. Frank Van Fleet considering its Clinical History and Treatment; Dr. Arnold H. Knapp, Pathology; Dr. J. Herbert Claiborne, Treatment; Dr. Walter E. Lambert, Present Conditions in New York City; Dr. A. E. Davis, Prophylaxis; Dr. Thomas R. Pooley, Dr. John E. Weeks, Dr. D. H. Wiesener, Dr. W. B. Marple, Dr. Chas. B. Meding, Dr. Herman Jarecky, took part in the general discussion. Abstracts of the papers presented and the discussion may be found in the Medical Record, February 21, 1903.

The Eighty-Second Annual Report (for the year ending September 30, 1902) of the Board of Directors of the New York Eye and Ear Infirmary, which has just appeared, shows that at that institution the enormous number of 33,789 new eye patients were received during the year. These patients required (excluding the removal of foreign bodies from the cornea of which cases there were a great many) 2,005 operations. In the new building for the care of gonorrhoeal ophthalmia, 99 cases were received into the wards; 48 of these patients were adults, 51 were infants of the average age of from four to five weeks. On account of the increased number of cases of trachoma applying for treatment it is proposed to build two wards for the care of such cases.

The Biographic Clinics of Dr. Gould.—"The Medical profession is under many obligations to Dr. George M. Gould, the vigorous editor of *American Medicine*. The last product of his fertile brain and productive pen is the "Biographic Clinics," a book of 233 pages. In writing this wonderful book he has done pioneer work in a most important department of medicine. He has shown conclusively that five of the greatest men in history were the subjects of eye strain, which was responsible for all the agonies that made the busiest and most useful epochs in their lives a constant misery. The analysis of the symptoms related by themselves or their biographers is so logical that no doubt can be left in the mind of the careful reader concerning the correctness of the author's conclusions. There can be no doubt that thousands are affected in a similar manner to-day, and as any competent oculist can secure the necessary relief.

this class of patients should be reached by the profession. This little book should be in the hands of every physician and teacher, as it treats of a subject of a medical affection, which, when overlooked or neglected, will bring ailments that will make life a constant misery, if not a total failure." N. Senn, in *Journal American Medical Association*, March 21, 1903.

BROWN PUSEY.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

VOLUME XII. No. 4.

CHICAGO, APRIL, 1903.

NEW SERIES.

ORIGINAL ARTICLES.

CONFESSIONS OF A TRAVELER.

(Continued.)

BY ALBERT B. HALE.

CHICAGO.

(Illustrated.)

WÜRZBURG.

As one passes from North to South Germany, conditions change. The landscape is different; not so flat, other trees and more hills or mountains, and not such great stretches of empty fields; in fact, parts of South Germany seem a continuous village. This aspect of the physical world is sympathetically expressed in the people themselves. They are larger, more genial, slower of movement and speech, but softer in manner. There is, too, more of the romance of history left, as I noticed in passing abruptly from Breslau to Würzburg in Bavaria. It is a busy manufacturing and commercial place of 75,000 inhabitants, but like many German cities, its activity is concealed while its holiday attire seems its natural garb. The University is one of the most famous in Germany and the Medical Faculty has always been carefully fostered, owing to the liberal endowment which the Julius Hospital has inherited. Our greatest interest, however, lies in the new Eye Hospital, planned and begun by v. Michel before his promotion to Berlin, but now finished and conducted by Professor Hess, advanced from Marburg to fill v. Michel's place.

If I use the word magnificent for the new hospital at Breslau, I must express my opinion of this at Würzburg by fascinating. The northern building is sturdier, it is of brick, modern, businesslike; the

southern building is softer in tone, of stone and stucco, fronted by a park, with the river Main running close to the side.

The first difference marked by the stranger is that there is practically only one entrance; patients of all classes must go through the same door with professor and students. In the long hall at the top of the steps it is not the easiest matter to find the waiting and examination or treatment rooms. Except for this slight criticism there is nothing but praise. The laboratories are commodious and well equipped; the lecture room is the best I saw in Germany, and the wards and operation room a delight for the scientific eye. The hospital was just a year old last summer and has seventy beds. The number of ambulant cases is relatively small. Averaging something like twenty a day, three to five of them at least being new cases, but they are generally interesting, and as many come from the surrounding country, quite varied in character. Professor Hess is an advocate of permanent sounds in tear sac cases and allows them to be worn for weeks at a time, the patients meanwhile returning home to work. He prefers silver nitrate to any other astringent. Of cataract operations, about one-half are without iridectomy. As v. Michel before him in Würzburg, he uses a binocular bandage for only twenty-four hours, till the first examination is made, and the patient may sit up within two or three days after the operation.

Working with Professor Hess, but on lines of his own is Docent and first assistant Dr. Römer, who has had a long training in general medicine and the hygienic laboratory before specializing in ophthalmology. His best known work is the outcome of this earlier training, for *Jequiritol* (Merek) is a laboratory product, and is an undoubted gain in the treatment of corneal opacities, while from the recently reported antipneumococcus serum in the treatment of *ulcus serpens corneae* (Hypopyon Keratitis) I saw splendid results, and his demonstrations thereon at the last Heidelberg Congress were eagerly followed. Patients in the wards are visited about 9:30 in the morning, and the ambulant cases come and go, not in a mass, but irregularly during the forenoon. During the semester demonstrations or operations are at 12 o'clock.

FREIBURG.

The "joy of living" could hardly find more satisfactory expression than that feeling which the traveler and student has on his first or even last view of this little city in Baden. It is an epitome of South German romance, in history, architecture and natural beauty. Twenty years ago the University, although it has always had famous men in its

ILLUSTRATIONS

MENTIONED IN ARTICLE BY ALBERT B. HALE.

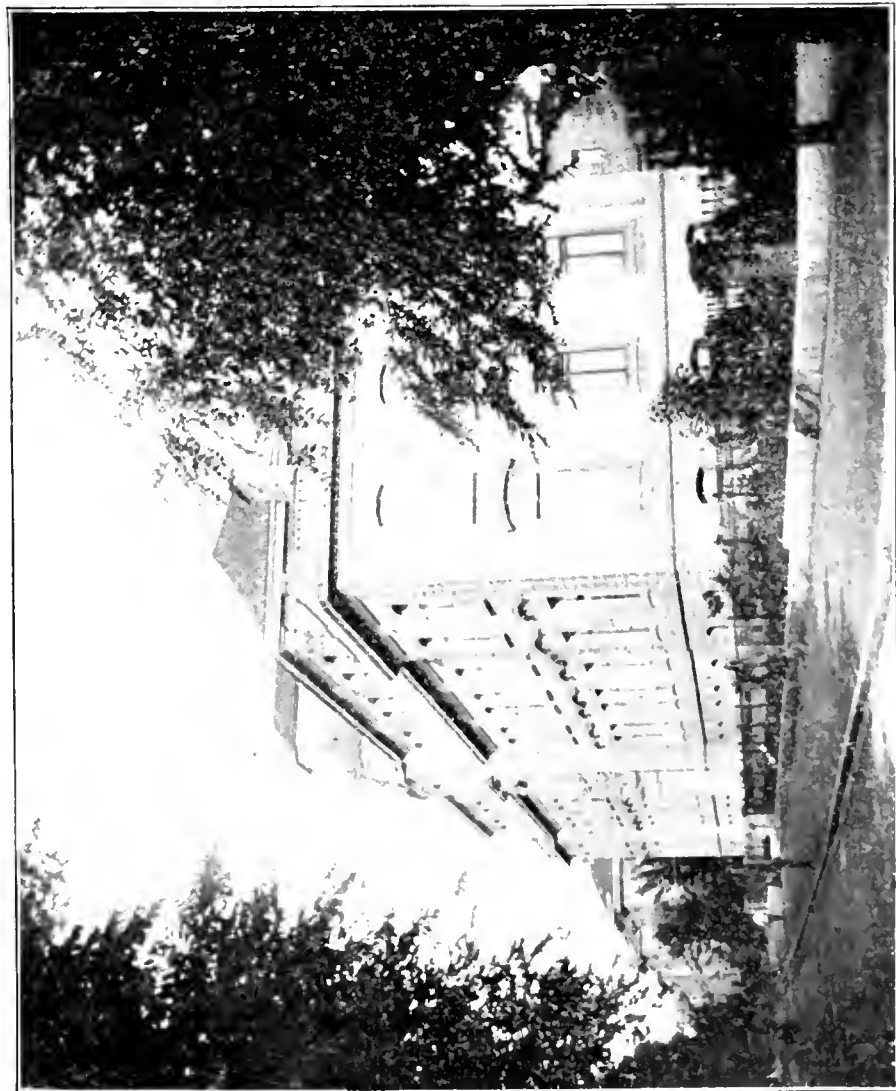


FIG. I. UNIVERSITY EYE HOSPITAL, WÜRZBURG

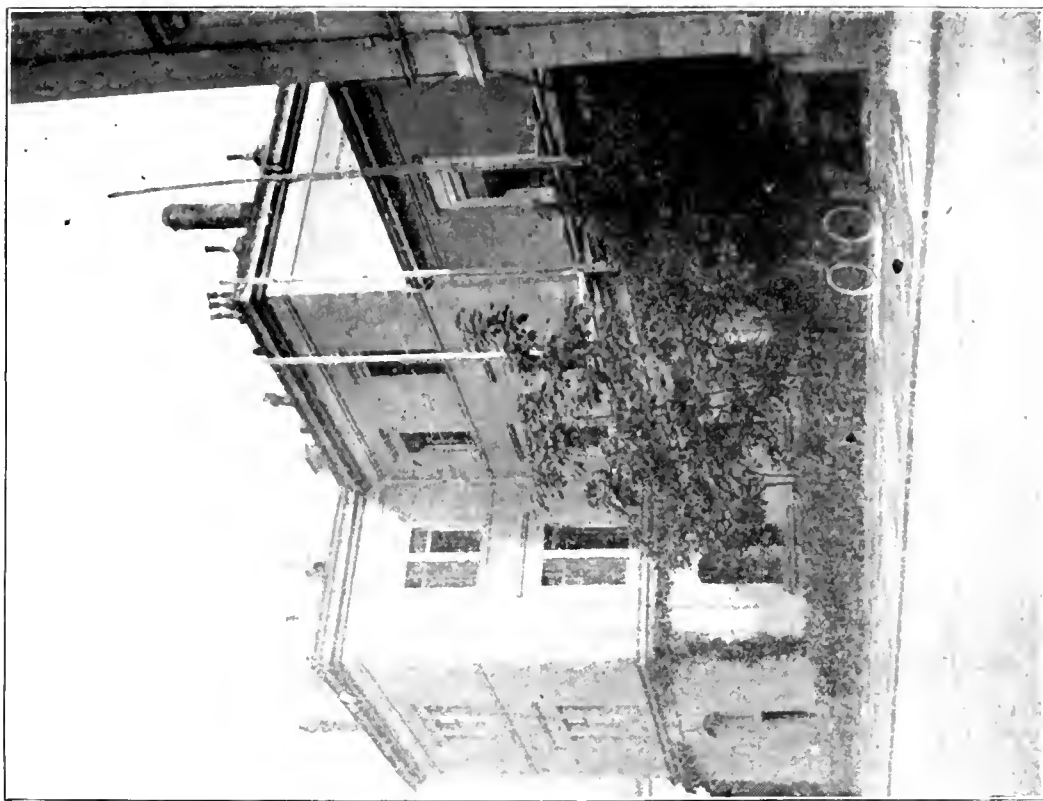


FIG. II. UNIVERSITY EYE HOSPITAL, FREIBURG

faculties, was a place where one went to have a good time. Of late, however, scientific energy seems to have thriven on poetry, and the medical faculty can boast of being wide awake to the needs of the present day. Hegar, Kraske, Emminghaus, v. Kahliden, are names well known; Killian in laryngology is famous, and today the eye hospital is becoming famous through the activity of Axenfeld, once associated with Uhthoff in Breslau, later professor in Rostock and now for nearly two years the successor of Manz.

It is in such small cities as Freiburg that one learns true student life, and at such small universities that one sees what fine work is done and what is the character of that work which has placed Germany preéminent among modern teachers. Freiburg has 55,000 inhabitants and a rich and populous adjacent territory; the little hospital can accommodate only thirty-six patients (men and women, the children having no separate ward) while the poliklinik dwindles occasionally to five or ten a day, so that Axenfeld uses as material for demonstration chronic patients from the neighboring blind asylum. There is no independent lecture room, the treatment and demonstrations being conducted under the students' benches; the operating room is on the ground floor, small, but perfect in its appointment. In the examining rooms one sees every modern device for the exact investigation of the eye, and used too systematically for all cases. The laboratories are relatively large and well appointed. Professor Axenfeld has brought with him a fine and carefully arranged collection of slides and mountings, and with the help of Dr. Stock, first assistant (now Do-cent) he develops to the utmost every opportunity offered by any patient's disease, no matter how trivial or uninteresting it may at first appear. Professor Axenfeld is a careful operator, delicate in his touch and methodical in every step. He likes the capsule forceps of Wickerkiewitz for all cataracts, and in favorable cases delivers the lens without iridectomy. The binocular bandage is applied for the first twenty-four hours when the eye is examined, after which he uses the wire screen (Fuch's or a modification) and says that patients think it excellent. He is a hearty advocate of extirpation of the tearsac, especially when the patient lives a distance from the hospital and when there is the least danger to the cornea either from disease or from intentional operative interference. He has devised a toothed speculum as retractor and hemostat—sometimes using two at right angles to each other—by which the operation is simplified. The Germans submit to this operation under cocain anesthesia more frequently than do patients in America!

Although Uhthoff is actively associated with the *Klinische Monatsblätter für Augenheilkunde*, to Axenfeld is due credit for the energy which has developed this admirable periodical since it left Zehender's hands: and in Freiburg one may visit the editorial sanctum and see how German thought gets into print. The exchange list is large and cosmopolitan and the treatment of articles produced outside the country is as just as if it had been made in Germany.

UTRECHT.

The city, to be sure, is Dutch, clean, well built, of 100,000 inhabitants, but the University is modeled after the German rather than the French pattern, and the famous Eye Hospital under Snellen signifies for us such an intimate alliance with teutonic ophthalmology that it is hard to realize until one is actually there that one is on different ground. But the character of the people has changed, the atmosphere of the wards is not the same, and for this very reason, probably, the experience of having visited Utrecht and Snellen is doubly valuable.

The building lies on the outskirts of the city, about fifteen minutes by tram (horse) from the railway station. Externally it is very imposing, and the temptation is irresistible to get a fresh view every hour. In reality, it is a State Institution, independent of the University, with a directorate of its own, but so long as the association is so intimate between the University professor (at present Snellen) and the hospital, it may be considered as an integral part of the educational system. There are accommodations for 200 patients, men, women and children, and there was under construction a system of small wards across the garden for patients who do not exactly need ward treatment. The laboratories are excellent and commodious, but it did not seem to me that they were so constantly in use as they are in Germany.

Holland has four universities—Utrecht, Leyden, Amsterdam and Gronigen, but in an ophthalmologic sense Utrecht overshadows them all, as patients come hither from the extreme limits in every direction, and one even finds Germans and Belgians enjoying its privileges, since the beds are free, and practically every applicant is admitted to the wards without question.* There are 200 beds, not always full, but even in 100 beds the student finds more than enough to occupy his mind. Especially is this so when the Poliklinik is considered. Here the material is enormous; about thirty new patients, and 120 old cases

* I shall touch this point later, when I refer in my next article to the relation of the university to society.



Fig. IV. MOORFIELDS'
ROYAL LONDON OPHTHALMIC HOSPITAL.

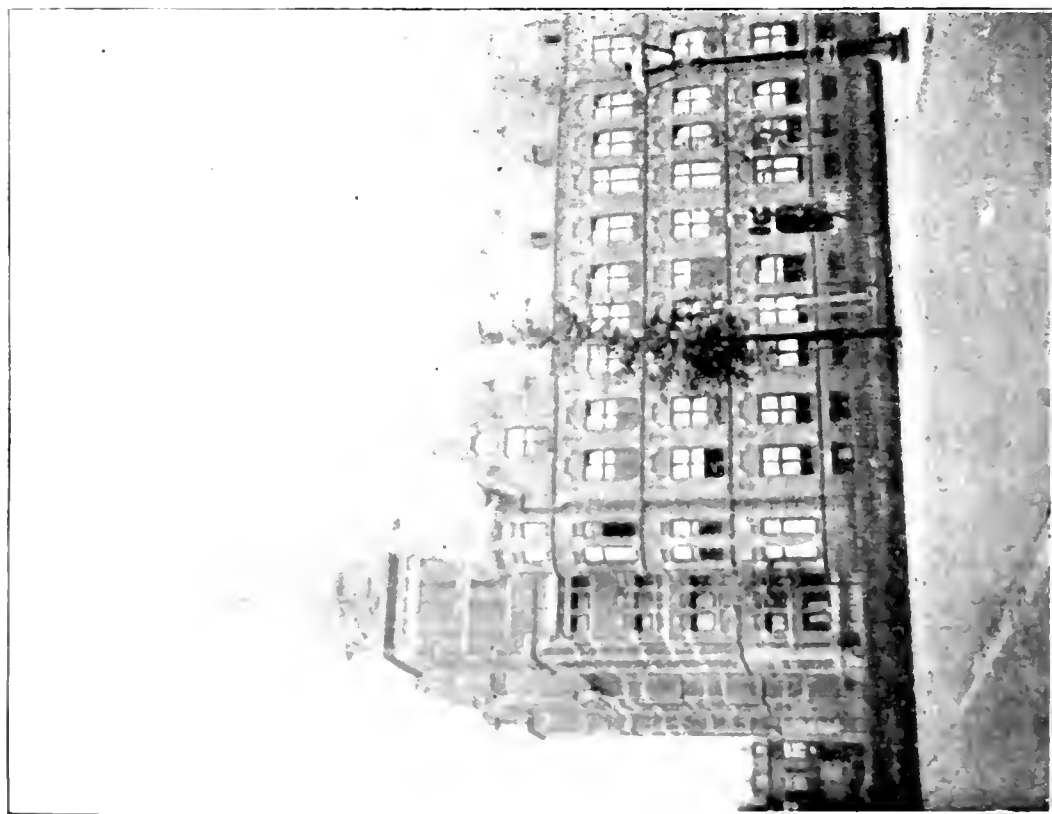


Fig. III. EYE HOSPITAL, UTRECHT.

daily. The stream never ceases and from early morning till late afternoon the dozen or more assistants, appointed and voluntary, are steadily at work, taking histories, making examinations, conducting treatment and verifying or altering earlier diagnoses. The system of record keeping is fine and elaborate, so that pathologic processes or operations can be well studied in groups. There are several examination rooms, and one lecture room adjoining, but without the tiers of benches seen in the usual German university. As I was there during vacation, I can say nothing of the lectures or demonstrations.

The beauty of the exterior is remarkable, but there is a certain disappointment on entering; there is too much wood and plaster, the thoroughness of the modern German finish seems lacking; the beds in the wards are wood and the walls unfinished. The rooms themselves, however, are well lighted, well aired, cheerful and commodious. The operation room is not large, has wood floor and a wood table; there was not the brilliancy about it that I had expected from the fame of the klinik. The table and sterilizing apparatus were of the simplest. I think it worth mentioning that the nursing resembles more the American than the German system. The young women have training, they go out easier and sooner into independent professional life, and have not that subdued attitude toward the world that characterizes the nurses of Germany, even when they are deaconess (not Roman Catholic) sisters. In fact the prettiest young woman I saw in Europe was a head nurse in this Utrecht hospital. I wonder more Americans do not study there!

But one ceases to criticize in face of the gloriously unlimited material. I would not dare mention all the operations or operative and pathologic cases I saw—even in one morning. Dr. Rochat, the first (non-resident) assistant took it as a matter of course that he should have four to six operations at half past ten. Two keratotomies, an enucleation, an iridectomy, two glaukomies, was no unusual thing, and I should not hesitate to affirm that within four weeks, when active teaching under Professor Snellen was in progress, the student would see every operation in modern ophthalmic surgery performed under varying conditions and circumstances.

The poliklinik begins soon after eight in the morning and continues till past noon. Operations, so far as I could learn, were about half past ten.

LONDON.

London with its 5,000,000, is a city, a nation, a world, of itself in a clinical sense; its material is vast, unestimated, and yet it is only

justice to affirm that today English ophthalmology has yielded in popularity to Germany or to Vienna. One reason alone explains this: the scattered condition of the clinics. Every general hospital has its eye beds, and there are good workers there. Guy's, Higgins and Brailey; St. Bartholemew's and Jessup, University College and Tweedy (and Flemming). Many of these same men are, however, connected with the famous Royal London Ophthalmic Hospital—Moorfields—and thitherward the student turns when thinking of London.

The present Moorfields will be four years old in June, 1903, and is removed from its earlier location near Finsburg Circus and Liverpool Street Station to a more commodious but less accessible site north, in the City Road E. C. The building is all it should and can be in such a crowded spot. The main entrance is imposing and attractive, the staircases, elevators (lifts) and halls spacious; the wards large, clean and airy. One notices here at once that it is Anglo-Saxon sail, for the patients do not appear in uniform garb, each wears his or her selected clothing, and the German military line of tailed cotton coats has disappeared. The operating room is beautiful, small, but with two adjacent rooms for preparation, examination and anesthesia, so that in reality it is large enough, and built as perfect as modern science and art can suggest. On each side of the center space where the table rests, is a small tier of steps with metal bars over which the student leans to watch the operation. Wisely these accommodations have been restricted, so that each observer can obtain a relatively near view of the eye. In Moorfields I saw much use made of the dark operating room with local (electric) illumination and examination—the window adjustments are so exact and the illuminating apparatus so practical that there is need of but a simple hand movement on the orderly's or nurse's part to change from daylight to electric lamp.

Many men famous in English ophthalmology may be seen in this operating amphitheater—Gunn, Lawson, Lawford or Nettleship, Lang, Morton, Treacher Collins, Spicer, Fay; each has his days a week when at about half past ten in the morning he may be found "at work." These constitute the Senior Staff, and control the cases in the ward beds. The dispensary (out) patients are directly in the service of the Junior Staff, Assistant Surgeons, Flemming, Fisher, Lawson and Marshall, who also enter the wards but do not by right operate except during August and September, when the Seniors are supposed to be on vacation. The visitor is safe in going to Moorfields any day at ten, when he will find the day's operations scheduled in the front hallway; there may be two or ten, but always something. He

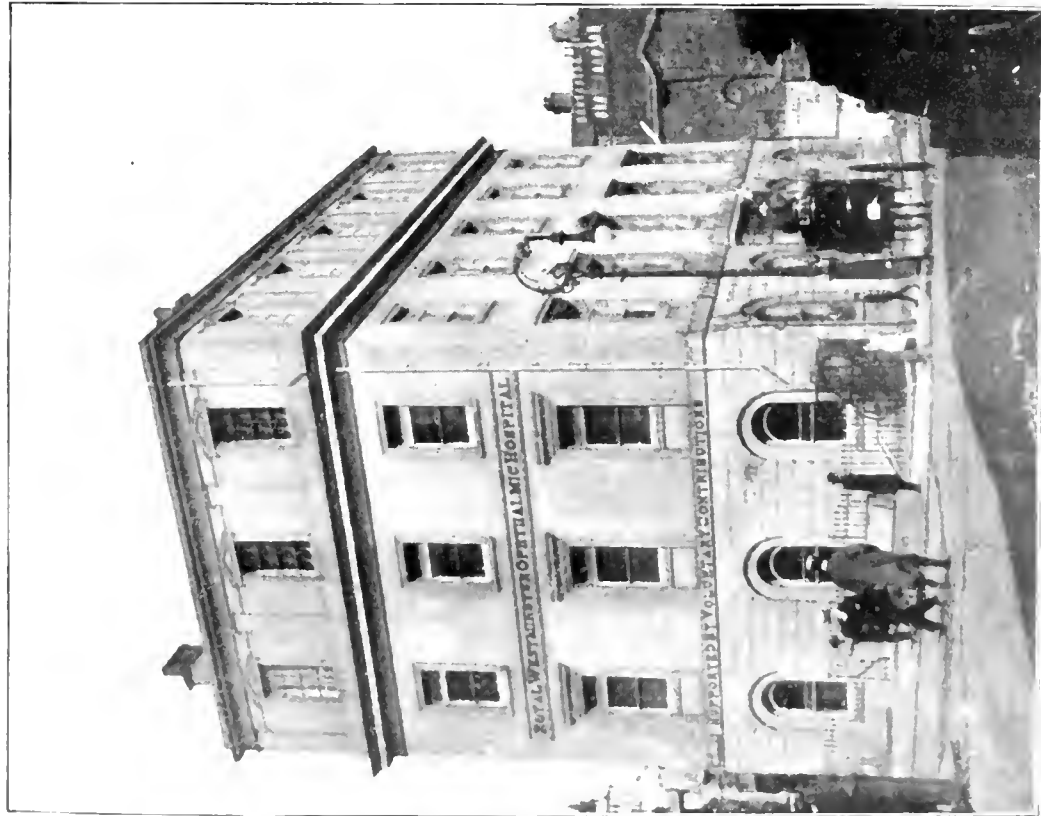


Fig. V. ROYAL WESTMINSTER OPHTHALMIC HOSPITAL
LONDON.

will be made welcome and listen to a running talk on the particular case, sometimes with others to illustrate it, but never with such dogmatism or exhaustive analysis to bring the student to the operator's point of view as is characteristic in Germany. The German lecturer for the time being is never wrong, he asserts the only logical reason for doing so and so. The Englishman is willing to admit a choice but that at the moment he is guided by personal motives to do a certain thing.

The hospital has 140 beds, fifty of these unfortunately closed for lack of funds (September, 1902). Some of the most remarkable cases—operative and pathologic—in eye diseases are sure to be found here at any time, and a visit to them is an epitome of the wonderful resources at command; but I was more than surprised to find that for the student practically no use is made of ward teaching. On my application to make the rounds (at 8:30 to 9 in the morning until nearly 10:30), I was told that I was the first to wish to enjoy such a privilege. Students, both natives and foreigners, were content with the operations and the dispensary, and took no part in the great lessons to be learned from ward treatment or diagnosis.

The outpatient department is on the ground floor and may be reached from the main door, but is always by patients and usually by visitors entered from the rear on Peerless street. If I spoke of a stream in Berlin or Utrecht I must say torrent when trying to convey some idea of the ambulant material at Moorfields. From 8 a. m. until late noon the large waiting and examining rooms are crowded, often beyond comfort; new patients and old are pressing to the treatment desks, and the activity is as great as in a country railway station! Here the patients are examined and either sent to the wards or continued as ambulant; here the visual tests are made and necessary glasses prescribed, but for fundus study they are taken into the neighboring dark room, large, well appointed, thoroughly suited to the purpose.

The junior members of the staff conduct the dispensary, with the help of younger assistants (either appointed or voluntary) and students who are taking courses at the hospital. English clinical workers do not wear uniforms (jackets) and they stand at high desks on which are paper, record and prescription blanks and sometimes drugs, but it is not unusual for treatment to be carried out in another room and by a nurse. I was told that the hospital was suffering from lack of assistants and I can well imagine that even the great number of students applying for instruction, is hardly enough to handle the material; certainly it is not all carefully utilized, but I judged that it

was a bit more popular to listen than to work. The dispensary seems another institution from the hospital, and one must learn by experience how they work together. The fitting of glasses is a continuous performance, and there is an authorized optician near the entrance who is qualified to fill the prescriptions. There is also a lunch room at which patients may refresh themselves and the student cannot do better than to resort to it.

In proportion to the size of the hospital the laboratory is small and pathologic diagnosis is by no means so persistently applied as it is in Germany. Excepting during the time when systematic instruction courses are given, I could not see that the student would have opportunity here for laboratory work. There is a beautiful collection of mounted eyes in the museum, but a museum does not make a laboratory, nor does a bench and a microscope ensure a diagnosis. Trying to speak without prejudice, I should say that a week in Breslau or Freiburg was equal to three in Moorfields, as far as an exhaustive study of each case was concerned, or ability and opportunity to watch the results of operation and treatment, but for the student or traveler who is intent on seeing many cases, or wishes at once and without change of residence to compare methods, to see technique at different men's hands, to experience as it were in its full vigor the resources of modern ophthalmology in practical application, there is today no place in the world to equal Moorfields. Even Vienna, the nearest approach to London, cannot in some respects offer what Moorfields does. The latter is not a one-man school, where a set theory or method predominates; for, although each man is independent of the other, there is a harmony of conduct if not of performance, that is pleasant to find. Vienna is a system of specialists, and the student must attach himself to one school at a time to get the best of instruction there.

In visiting London, it is only just to remember that there are other eye hospitals besides Moorfields. The Central London Ophthalmic Hospital, Gray's Inn Road, for instance; and there is excellent clinical material to be found at the South London Eye Hospital near the Elephant and Castle, but this is an unattractive and inaccessible neighborhood for the stranger; while probably the least visited but closest to the foreigners' habitat is the Royal Westminster Ophthalmic Hospital in King William street, but a stone's throw from Charing Cross itself, and adjacent to the Charing Cross Hospital. It has recently been remodeled and its quiet interior is a pleasant contrast to the confusion of the busiest street in the world, outside. On the staff are such well known names as Frost, Hartridge and Dodd.



ILLUSTRATION

MENTIONED IN ARTICLE BY GEORGE T. BRADY.



There are forty beds in rather small wards. The operating room is modern in every detail. The out-patient department is, like Moorfields, crowded, there being about fifty new patients a day, and upwards of 150 old ambulant cases. The out-patients assemble at 1 p. m. and examination and treatment begins shortly after. There are usually four independent attending men on duty, who, as I have mentioned, stand at little raised desks and make out histories as the cases are presented to them. Ophthalmoscopic examination was thorough, and here I found one of the finest dark rooms in Europe, but all treatment except fitting of glasses was carried on in a small cabinet close to the drug room and the patients' exit, so that it was nearly impossible to follow a case from its reception through examination, diagnosis, treatment and dismissal, without mixing in an unpleasant mess at the door. Of German deliberateness I saw no trace.

MUCÔCELE OF THE LEFT INFERIOR LACHRYMAL CANALICULUS.

BY GEORGE T. BRADY, M. D.,

SAN FRANCISCO, CAL.

(From the Pathological Laboratory of Cooper Medical College.)

(Illustrated.)

Under the title of "Mucocelles of the Lachrymal Canalicules," but one case has been reported. Wharton Jones* describes such a lesion as appearing in both tear channels, accompanied by stillicidium lachrymarum. Midway between the punctum and the sac in each lid was a reddish elevated swelling about three mm. in diameter. Fungous tissue was pouting out of the punctum. After incision of the canals he found the cysts to be lined with granulation (fungous?) tissue surrounding an enclosed concretion of inspissated mucus. From this description, one would better term it dacryolithie obstruction of the canalicules, rather than retention cysts.

Mrs. M., fifty-nine years of age, consulted me on August 6th, 1901, for a growth on the inner portion of the left lower eyelid, existent for fifteen years, and which had perceptibly enlarged in the past twenty months. Fifteen years ago a styne developed at the site of the present swelling, keeping the part considerably inflamed for a period of two weeks. No epiphora occurred then or thereafter.

At the internal margin of the lower lid is seen a translucent cyst.

* Treatise on Practice and Principles of Ophthalmic Medicine and Surgery, 3rd Ed., London, 1865, p. 706.

11x6 mm. in extent, and elevated three mm. above its surroundings. Palpation proves it to be a sac completely filled with fluid. There is no pain to touch, nor obstruction to vision. Strong pressure fails to discharge the contents into the lachrymal lake, or nasal duct. The upper punctum is patulous; the lower entirely obliterated. No. 1 Bowman probe readily passes through the upper canaliculus, the lachrymal sac and nasal duct.

Aspirating some of the liquid with a hypodermic syringe, it is found to consist of watery mucus through which is irregularly distributed a number of swollen vacuolated epithelial cells, many having suffered extensive mucoid changes and whose protoplasm is in an advanced stage of fatty degeneration. (Sudan III.)

With a canaliculitome, I split the entire upper border of the cyst, and evacuated its contents. The nasal orifice of the nasal duct was then plugged and the lachrymal sac distended with a weak solution of methylene-blue injected through the superior canal. There was no regurgitation of the colored fluid from the sac into the cystic cavity. Any possible previous communication had long since been occluded. The sac was of normal dimensions and lay nasalward of the cyst.

The walls of the retention cyst on account of pressure atrophy were too thin to dissect out. So, with a small knife-like electrode, I denuded the lining epithelium, proceeding from within gradually outward. Four months of this treatment combined with compression, removed all traces of the cyst. At the date of writing, the lid has a normal appearance, and the walls of what was the cystic cavity are closely adherent.

135 GEARY STREET.

GLAUCOMA MALIGNUM—REPORT OF A CASE WITH RECOVERY OF VISION.*

BY H. E. PETERMAN, M. D.,

BALTIMORE, M. D.

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Illustrated.

The subject of Malignant Glaucoma is one of profound interest to the oculist, for the reason that eyes thus affected usually proceed rapidly to blindness.

Some confusion exists as to the use of this term. A few writers

*Read before the Section of Ophthalmology and Otology of Medical and Surgical Faculty of Maryland.

include under it all cases of glaucoma resulting in blindness after operation.

Von Graefe¹ described this condition, as the malignant course, and stated that there are all degrees from the most severe, to those in which the course of the disease returns to the normal.

Schweigger² says "the term cannot be sharply defined, and includes under it those cases terminating unfavorably from intraocular hemorrhage."

According to Fuchs,³ primary glaucoma constitutes about one per cent of all cases of eye disease, and it has been variously estimated that two per cent of all cases of glaucoma operated upon terminate in malignant glaucoma with resulting blindness.

Most cases of this affection follow iridectomy for glaucoma simplex, but cases are on record where it has followed sclerotomy. It also may follow, but more rarely, operation for acute, sub-acute, or even hemorrhagic glaucoma.

The question naturally presents itself, what is the cause of this greatly dreaded condition? A number of theories have been advanced by different observers.

Among the predisposing causes may be mentioned age and sex. Looking over the reports of a number of such cases I find that eighty-three per cent occurred in females, and that their ages ranged from seventeen to seventy-three.

Of the cases occurring in females, sixty-five per cent were during or near the climacteric period. Weber's⁴ theory is that the lens is dislocated forward into the groove between the iris and ciliary body, and thus mechanically obstructs the circulation of the fluids in the eye, and increase of tension follows. Pagenstecher's⁵ view coincides with that of Weber, both having arrived at their conclusions after examining an eye pathologically, that had been affected with malignant glaucoma, and each finding the lens displaced forward.

Nettleship⁶ suggests that this forward dislocation or displacement of the lens is due to a weak suspensory ligament, allowing it to assume this position from slight pressure from the vitreous.

Priestly Smith⁷ says that "The lens may be wounded, swell and block the wound, or that the uninjured lens may be driven forward by pressure from behind, and completely block the wound and annihilate the angle of the anterior chamber, so that no fluid escapes from the eye after the first hour or two, and the tension is soon as high or higher than before."

Schweigger⁸ and Friedenwald⁹ assume that there are obscure

structural anomalies inherent in the eye which form the basis for the production of malignant glaucoma, and the facts given to substantiate this theory are

First.—The bilateral character of the disease, which has been particularly emphasized by Schweigger.

Second.—The much greater predisposition of females.

Third.—The great preponderance of cases occurring after simple glaucoma.

The case which I wish to report has several interesting features. On the 10th of July, 1899, Mrs. M. T., aged 52, a woman of rather feeble health, consulted me concerning the condition of her right eye, which had been affected for several months. She described seeing colored rings around lights, at times, and of some obscuration of vision.

She had had quite a little pain in and around the eye preceding her visit. Had glasses fitted by opticians, and changed a couple of times, but received no benefit. When she consulted me on the above date, the pupil was moderately dilated, and did not respond to light. The anterior chamber was shallow, the cornea and media somewhat hazy, the conjunctiva slightly injected and the tension $+1$.

The ophthalmoscope showed a myopia of about 3 diopters, also a deep glaucomatous excavation of the papilla, which did not extend entirely to the edge, especially at the nasal side. The retinal veins were slightly tortuous. The field of vision was decidedly contracted, especially in the superior nasal field. The temporal field to about 70° , the upper and lower to about 40° , and the superior nasal to 20° .

The left eye was apparently in good condition, having a normal physiological excavation of the papilla. The correcting glasses were as follows:

R. E. — 3. D S = $-.75$ C. ax. 90° V = 20/LXX

L. E. + .75 D S = $+.75$ C. ax. 180° V = 20/XX+.

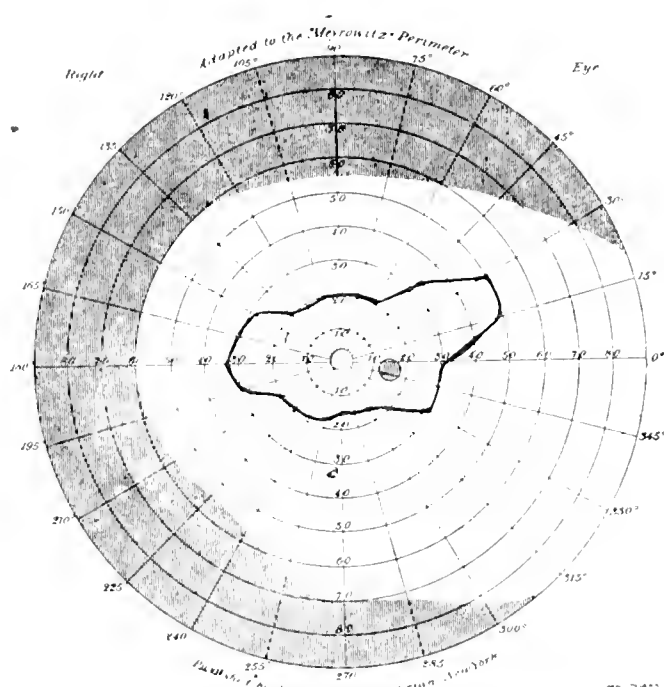
Patient was given a solution of eserine to be used in the right eye and asked to return in a day or two. July 13th patient returned, and eye was in much better condition. Pupil contracted, tension diminished, eye quite comfortable and vision with correcting glass improved to 20/XXX. The field of vision was taken again and found to be the same.

The patient continued under my care for two months without any change. I was then absent from the city for a month, and did not see her again until December 21st, when I found that the treatment had been stopped and the eye seriously neglected. The condition

was similar to that on her first visit, only somewhat aggravated. There was a general cloudiness of the media and some lens opacity which prevented a good view of the fundus, and of course vision was much reduced, but after a few days' use of eserine it was improved to 20/C.

At this visit I observed that the left eye had a strong venous pulse, but the tension, vision and field were normal. Operation was advised and after a couple of weeks consented to. See Field No. 1.

On January 8th, 1900, under cocaine anesthesia, a broad iridectomy was made in the right eye. The operation was rather painful, but a perfect coloboma resulted. There was a very free hemor-



No. 1.

Mrs. M. T. Jan. 5, 1900.

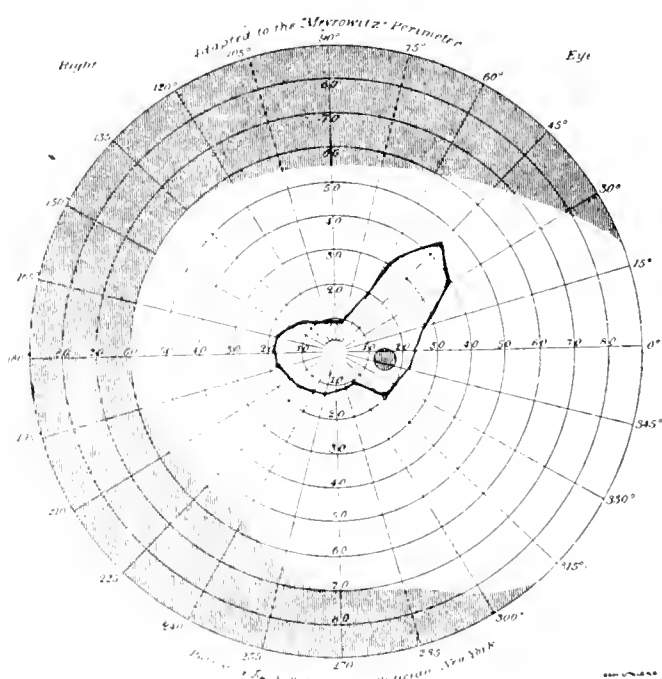
V=20/C, with glass. Taken 3 days before operation.

rhage after the excision of the iris, which filled the anterior chamber and obscured the vision. The eye was dressed, and as it was comfortable, was not disturbed until the morning of the second day after, when it was redressed, and found in good condition. As a precautionary measure, eserine was instilled in the left eye for a few days before and for several days after the operation. During the afternoon, or about forty-eight hours after the operation, she began to have pain in the eye, which became more severe during the night, and on the following morning at my regular visit, I found her suffering intensely. Examination of the eye showed extensive oedema of the lids and conjunctiva. The cornea was steamy and anesthetic and the eyeball very

hard T + 3. The anterior chamber was quite obliterated, the iris was lying against the cornea, but the wound was not gaping. Patient was given an anodyne and ordered to use hot applications over the eye. Strong solutions of eserine were instilled in the eye for several days, but I could not see that they had any effect.

A mydriatic was not tried in this case. Hot applications and strong solutions of opium lotion gave some relief from the severe pain, but anodynes had to be administered for several days.

On January 16th the patient was given salicylate of soda in large doses, gr. xx every two or three hours. On the following day the dosage was reduced somewhat, owing to its effect, but the drug was



No. 2.

Mrs. M. T. March 12, 1900.

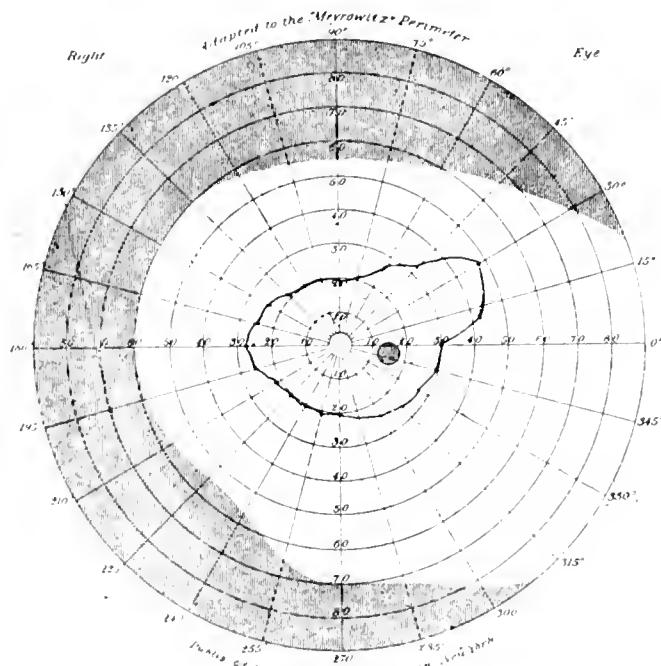
V=20/LXX, with glass. Taken about 2 mos. after operation.

continuously administered for several days. On January 20th, twelve days after the operation, the eye began to be less painful and to show some signs of improvement, but until this time, the pain was quite continuous, and when she was not under the effects of an anodyne she would be delirious. On January 22nd the oedema of the lids and conjunctiva had subsided and the eye was comparatively comfortable. Tension was nearly normal, anterior chamber partly re-established and still containing quite a little blood. The iris was adherent to the cornea at the inner side. January 27th I made the following note on the history card:

"Eye improving rapidly, cornea clear, injection clearing up, tension normal, synechia broken down, anterior chamber reformed and there is decided lens opacity."

From this on the improvement was rapid and uninterrupted.

On March 11th patient came to my office and a careful examination was made. The excavation of the papilla now extended quite to the edge, and the field was decidedly contracted (See Field No. 2), her myopia was found to have increased to 7 D and $V = 20/70$ there is decided lens opacity which prevents vision from being better. This eye was again carefully examined October 2nd, 1902, nearly three years after the operation, and the field (See Field No. 3) and vision were



No. 3.

Mrs. M. T. Oct. 2, 1902.

$V = 20/LX$, with glass. Taken nearly 3 years after operation.

found much improved. Vision with correcting glass was $20/L +$. The improvement in vision may have been due to some clearing of the lens opacity. In reviewing the history of this case, I think it will be conceded that I am right in classing it as a case of malignant glaucoma.

It may now be of interest to follow the condition of the left eye. This eye remained in good condition for one year after operation on the right eye. She then complained of failing vision. On examination the papilla was a dirty muddy color with the edges blurred. The

arteries were rather small and the veins slightly enlarged. Vision was reduced to 20/L. The field of vision was normal. For this condition she was treated with iodides and mercurials, but the vision remained about the same.

On April 22nd, 1902, this eye had a severe attack of acute inflammatory glaucoma, which resisted the free use of eserine and salicylates.

Not getting any relief from these measures an iridectomy was advised, but with caution, remembering the course of the other eye after operation. On April 28th, 1902, under holocaine anesthesia, an iridectomy was made on this eye.

Operation was very painful, but was smooth and uncomplicated, with the exception of a free hemorrhage into the anterior chamber.

She made an uneventful recovery, escaping the malignant course pursued by the other eye. One month after the operation, the eye had settled down to a natural condition, free from pain, congestion and abnormal tension, with the anterior chamber perfectly reformed. The field of the left eye was contracted concentrically, about 20° in all meridians. Four months later she called at my office, and examination showed fields the same in each eye, as when last taken, and eyes both in good condition with normal tension. She was now prescribed the following glasses for constant wear:

R. E. — S. s = — 1. C. ax. 120° V = 20/L +.

S. E. — 3. s = — 1. C. ax. 105° V = 20/L.

Among the interesting features of this case are:

First. The recovery of vision, which has remained stationary for a period of over three years after the operation. Dr. Friedenwald's case, reported in Knapp's Archives Vol. XXV, resulted with recovery of vision. Hirshburg and Schweigger have reported cases where some vision was retained for a time, but in nearly all cases reported, blindness was the inevitable result.

Second. It is interesting to follow the refraction of this case. When I first saw the patient, she had a compound myopic astigmatism against the rule in right eye, and a compound hypermetropic astigmatism against the rule in the left eye.

That astigmatism against the rule is an important factor in the causation of glaucoma, was pointed out by Dr. Theobald in an article in the *American Journal of Ophthalmology*, of October, 1888, and I have found it to exist in about one-third of the cases of glaucoma that have come under my observation. The change of the refraction is

particularly interesting. A change from three diopters of myopia in the right eye to eight diopters, and from a hypermetropia of nearly one diopter in the left eye, to a myopia of three diopters.

This change was evidently caused by the intra-ocular pressure, and a yielding sclerotic coat.

It is quite possible that the refraction of the right eye, which is now eight diopters of myopia, and which was three diopters of myopia when I first saw the case, was like the other eye hypermetropic before the glaucomatous process began.

Third. Another interesting point in this case was, that the second or left eye became affected with glaucoma two years and three months after the attack of malignant glaucoma in the right eye. An iridectomy was performed, and was not followed by an attack of malignant glaucoma.

So far as I have been able to search the literature on this subject, this case seems to be unique in this respect. Weber reports a case, in which iridectomy on the first eye did not produce malignant glaucoma, while on the second eye it did.

It has been so universally the rule for the second eye to be attacked by malignant glaucoma, when the first eye has pursued this course, that Schweigger¹⁰ has said "When glaucoma malignum attacks one eye it follows iridectomy on the other, even when the other eye is not affected for years after the first;" also he said concerning the treatment: "All that we can do in cases of malignant glaucoma in one eye, when the other eye becomes affected, is to use eserine or pilocarpine in order to postpone blindness as long as possible."

When the second eye became affected in this case, it was in the form of an acute inflammatory glaucoma, which did not yield in the least to myotics and salicylates, and from the fact that the first eye recovered from its attack of malignant glaucoma; also that the attack in the second eye was a typical acute glaucoma and not a glaucoma simplex, caused me to brave the responsibilities and do the operation, which, fortunately, has resulted so favorably.

Concerning the treatment of these cases, Weber,¹¹ believing that they are caused by the lens being dislocated or displaced forward usually into the groove between the iris and ciliary body and thus mechanically obstructing the circulation of the fluids, advises measures to relieve the dislocation as follows: a puncture of the sclerotic 8 or 10 m.m. from the corneal margin and then pressure with the finger or other smooth instrument directly upon the cornea, at first gently and then with greater force for a minute or two. This procedure is, of course,

supposed to replace the lens and cause a re-establishment of the anterior chamber by the entrance of fluid between the iris and cornea.

He adds, that for this critical maneuver, a general anesthetic is usually necessary, and that if this method fails, or if the lens be injured or otherwise displaced, extraction affords the only chance of saving the eye.

Hirshburg¹² reports a case cured by this procedure.

Puncture of the vitreous was practiced by Von Graefe, and posterior sclerotomy by Javel, Fuchs, Massalon and Jacobson.

Strong solutions of eserine frequently repeated may be tried. Kollock¹³ reports a case which was relieved by this treatment.

Lastly I may mention the use of salicylate of soda in large doses, which gave absolute relief in Friedenwald's case, and apparently was the important factor in relieving the case, which I have reported. Sutphen¹⁴ reports a number of cases of primary and secondary glaucoma relieved by the use of this drug. He states that "he believes it to be almost a specific for the relief of severe pains, so constant in secondary glaucoma, with or without an apparent rheumatic diathesis."

Also in several cases of glaucoma developing slowly without inflammatory symptoms, he has seen a decided decrease in the tension follow the administration of this drug and the disease be apparently held in check. Risley, in discussing Sutphen's article, says: "He has seen the biborate of soda have the same beneficial effect."

He thinks that it is the soda, and not the salicylic acid, which is the valuable agent in these cases.

The exact manner in which the salicylate of soda brings about its effects seems to be an unsettled question. Gifford,¹⁵ after a number of experiments upon man and animals, is led to think, like Oltramare, that it is due to a general capillary dilatation, causing a local depletion of the parts affected.

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- 649 W. FRANKLIN STREET.

AMBLYOPIA WITH SLOW RECOVERY OF VISION AFTER EXTRACTION OF VERY OLD CATARACTS.

BY H. MOULTON, M. D.,
FT. SMITH, ARK.

The proposition that previously seeing eyes which have not been used for many years become amblyopic, and that such eyes when again brought into use may recover good vision, is strongly sustained by the two cases here related. In these cases the eyes became blind from cataract in childhood but at a slightly later age than most of those reported. Yet the amblyopia manifest after operation, and the subsequent improvement were marked. In one case both eyes were blinded at the age of seventeen years, and remained so for twenty-seven years. In the other the blindness was of one eye and lasted from the age of twelve years till the age of fifty-seven years, or for a total period of 45 years. This last case is very similar to the one reported by Dr. Friedenwald, in *THE OPHTHALMIC RECORD* for January, 1903.

Case 1. Mrs. Ellen Wehunt, of Mena, Ark., age 44, consulted me December 15, 1900. She had been blind since about the age of seventeen years. The family history was negative and she was in good general health. From her account of her history the cause of her blindness could not be ascertained. But it was evident that in childhood her vision had been good. She had never learned to read, but this was due, not to inability to see during that time of early life when reading is usually learned, but to her environment. The condition of both eyes was practically the same, viz.: shrunken cataracts, mobile pupils, perception good, projection fair. Vision movements of hand close to eyes.

I operated on the right eye December 16th, and on the left eye

December 27. The method of operation was the same in both. Under cocain anesthesia, with a Graefe knife an incision was made in the upper periphery of the cornea 1 m.m. from its margin and embracing about one-third of its circumference. The shrunken lens was extracted with iris forceps together with the entire thickened capsule.

The cataracts were only about 1.5 m.m. in thickness and flexible though firm and coherent. As far as could be seen not a particle of opaque matter remained behind in either eye. Healing was prompt and uncomplicated, absolutely without reaction. The pupils were round and clean, and responded normally to light. Each eye was left unbandaged on the fifth day.

The ophthalmoscope showed an absolutely clear way for the entrance of light and a healthy fundus in each eye. Yet for the first few weeks there was very little vision; during the first days almost no more than before operation. The patient could not distinguish large objects even near her. Standing between her and a white wall she could not see me, yet she would recognize the movement of my hand at about four feet away. No object was recognized as different from its surroundings unless it was in motion. By the tenth day she could with difficulty count my fingers at four feet with the right eye after I had moved my hand. Before moving the hand she could not see it or even me. When I sent her to walk at this time with an attendant she saw nothing though the eye was open. Later, after the left eye had recovered sufficiently from its operation to allow her to walk out again she at first saw nothing. One day she came in with the news that she had recognized an empty can beside the walk. It was a long time before she could distinguish a white door knob on a dark painted door though she promptly counted fingers at the same distance across the room, where by movements, etc., I had succeeded in getting her to see my hand. Fixation was very imperfect. She evidently received images upon the retina but was utterly powerless to interpret them or locate them. I kept myself assured from time to time by ophthalmoscopic examinations that there was nothing wrong within the eye, and felt very much discouraged over the result. The pupils were round and normal in size and reaction. The ophthalmoscope required only a + 3.50 D. spherical lens to obtain a perfect view of the fundus and I thought she ought to see much better than she did. But as sight began to improve I began to understand that she was like one born blind and must learn to see again. So I encouraged her to hope.

By January 10th, twenty-four days after operation on the right

eye, she had with that eye with $+ 3.50$ D spher. $V =$ about $15/200$. The left eye was too amblyopic at this time to be measured, except for counting fingers at about six feet. Her vision, though improving perceptibly, yet was of very little use. Nevertheless she went home and I have not seen her since. However, on January 23rd, 1901, I heard from her; sight was still improving. Again on March 18 she was using her glasses. She went about alone, could see to thread a needle or do anything else she liked, and was perfectly independent and happy. She thought she could see as well out of one eye as the other.

Case 2. Mrs. S. A. Ray, 57 years old was referred by Dr. Collins, October 1, 1902. Two weeks before this date her left eye, which had been her seeing eye, was attacked with inflammation. I found a sloughing cornea and panophthalmitis. Her right eye had been injured when she was twelve years old by a splinter of wood and had been blind ever since. There was a temporal corneal scar with iris involved in it. The inner and upper and lower borders of the pupil were free. The lens was cataractous and shrunken, the capsule being tied to the adherent leucoma by cicatricial bands. Vision equaled fingers at six inches; perception and projection good.

As the left eye was hopeless I asked the patient to wait till it was quiet and then return for operation on the right eye. She appeared for this purpose on January 8, 1903, and entered the hospital.

A corneal incision was made with a Graefe knife and an iridectomy made upwards and outwards. Most of the capsule and lens remnants were removed. Some of the capsule and with it probably some lens substance was necessarily left attached to the cicatrix. But the central area of the pupil to the extent of about four mm. was perfectly cleared of all obstruction, as was likewise the region of the iridectomy. The operation was accomplished without much unusual traumatism, but there was some dragging on the bands uniting the capsule to the region of the cicatrix in the iris. Fingers were counted and the eye bandaged.

On the second night, the patient was restless and during sleep rubbed the eye displacing the bandage and causing severe pain which lasted an hour or more. In the morning I found a slight hemorrhage into the anterior chamber. The wound was in coaptation. $V =$ fingers at two feet; the blood was soon absorbed. Barring this accident recovery was normal.

On the twelfth day the eye was quiet and perfectly free from redness and photophobia. I ascertained by an ophthalmoscopic examina-

tion that the media were absolutely clear and the fundus apparently normal. Yet fingers were counted with difficulty at only two feet and the patient was very much depressed at the poor result. During the following days it was with great effort that she could be made to see any object. She could not fix her eye properly. The media remained clear.

Although by January 26, with + 9. D. Spher., she was made to see 10/200, yet she had to be led about. She then went home. Since then there has been gradual improvement and her physician informed me she is able to go about alone and recognize her friends, and is perfectly pleased with the result. She has not returned for glasses and as she is poor and lives at a great distance, it is doubtful if she will, else I had deferred this report.

There is no doubt these were cases of *amblyopia* from disuse. The persons were, after operation, as though they had been born blind, and had to learn, and did learn to see anew. Although not identical with the amblyopia of strabismus, they have an important bearing in that they prove that amblyopic eyes may be improved.

A NEW METHOD OF PREVENTING INFECTION FROM THE CONJUNCTIVA AFTER OPERATIONS INVOLVING OPENING THE ANTERIOR CHAMBER.

BY E. C. ELLETT, M. D.,
MEMPHIS, TENN.

The subject of the prevention of infection of a corneal wound from the lachrymal passages has been, as a rule, discussed with reference to some treatment of these passages, such as syringing, probing and finally closing the puncta or canaliculi by cauterization or ligature. This matter is referred to in order to emphasize the fact that in the following case the infection was not expected to occur from the lachrymal passages, but from the conjunctiva. An incurable conjunctival discharge is not common, but when it occurs it offers an almost insurmountable barrier to any operation which includes incision of the cornea. It has frequently occurred to me that if some suitable covering could be provided for the corneal wound after such operations, and especially after that of cataract extraction, these operations could be performed with greater safety from infection than is now possible.

Thiersch grafts, egg membrane and other substances not of an organic nature, had been thought of, but in the following case were discarded for a plan which seemed to be superior to any of them.

G. J. P., aged 69, a white male, consulted me in August, 1902, with immature nuclear cataracts in both eyes. Dilatation of the pupils so improved his vision that an iridectomy was proposed for the purpose of improving the sight for a while, and of being utilized to facilitate the extraction when it should be done. Examination showed a small amount of muco-purulent discharge almost constantly in the conjunctival sac, its origin being apparently from the conjunctiva, as the lachrymal passages were permeable and healthy. The patient was not aware that there was anything abnormal with his eyes except the failure of vision, so that a definite history as to the duration of the conjunctival discharge was not obtainable. The nose was also healthy. The palpebral conjunctiva was reddened but smooth, and the bulbar portion of the membrane normal. A culture of the secretion gave a growth of staphylococci. Treatment of the conjunctiva was begun, mild measures giving way to more vigorous ones. Suffice it to say that a faithful trial was made of all the astringents that I had ever heard of, as well as daily washing of the lachrymal passages with an antiseptic solution, but without any effect on the conjunctival discharge. This treatment was carried out at my office for two months, and the patient was then sent to St. Joseph's Hospital, where he was under my care for a month longer, still without any improvement. He then passed to my colleagues at that institution, and was treated by two competent ophthalmologists for four months more. When I returned to duty at the hospital on March 1st, the patient was still in the ward and the condition of his conjunctiva was unchanged. None of us had dared to undertake the removal of the cataracts, which were now mature, for fear of infection. Concluding that the conjunctival condition was incurable, I told the patient that an operation was full of danger to him, but that it did not seem possible to remove the source of the danger, and that if he was willing to accept the risk an operation could be done which at least offered a possibility of success. He agreed to this, and the following operation was done: The conjunctiva was incised all around the cornea as if an enucleation was to be performed. The conjunctiva was then dissected from the ball by means of a probe, care being taken to free it well in the upward and downward directions to a distance of about half an inch from the limbus. The cataract was rapidly extracted, the combined operation being done. The cut

edges of the conjunctiva were then picked up and drawn respectively upward and downward till they met over the cornea. They were then united by a horizontal row of stitches, so as to completely cover the cornea. Care was taken to secure perfect apposition between the edges of the conjunctival flaps, and no apparent gap was left in the line of union. Iodoform was dusted thickly on the line of union, and the eye covered by a light gauze dressing which rested on the cheek and brow and did not touch the eye. The eye was irrigated every hour with a boric solution and the iodoform reapplied after each washing. There was a good deal of pain for eight or ten hours after the operation, necessitating an opiate. The patient vomited once, before the opiate (codeine) was given. The operation was performed at 9 a. m., and under local anesthesia. The night of the operation the patient slept well, and had no further pain or other trouble. The eye looked very red, but there was no swelling of the conjunctiva or lids or other sign to indicate any unusual inflammatory reaction. The stitches were left in till the fourth day, when the ball seemed to have regained its natural contour and the wound had had plenty of time to close. On removing the stitches the conjunctival edges separated and exposed about one-fourth of the cornea. The corneal wound had closed and atropine was instilled. The edges of the conjunctiva continued to separate and the whole cornea was exposed about three days after the removal of the stitches, the conjunctiva attaching itself again in its normal position. This was to be expected, as it did not seem likely that union or adhesion could occur between the normal corneal surface and the conjunctiva. The final visual result was excellent, being 20/30 plus, with + 11.00 D. Attention is called to the absence of corneal astigmatism. A test made about two weeks after the operation showed 1.00 D, but before the end of the third week this had disappeared and none can be detected by ophthalmometric measurements or by the test lenses. Possibly this is due to the even pressure exerted on the cornea after the operation. The conjunctival discharge persists, and a culture shows pneumococci and staphylococci. A similar use of the conjunctiva has been proposed in France for the purpose of covering large corneal wounds, the result of injury. The originator of this method is entitled to due credit, and again I would emphasize the fact that the procedure I have adopted is not to be taken as a method to be employed in cases of lachrymal disease, where simpler and effective means of avoiding infection are in use.

A TUMOR OF THE DURA MATER COVERED BY THE CEREBELLUM, LOCATED IN THE POSTERIOR FOSSA OF THE SKULL. SOME OF THE SYMPTOMS RESULTING THEREFROM.

BY WILLIAM LEWIS BULLARD, M. D.,
COLUMBUS, GA.

In 1888, Mr. F. A. V., of Seale, Alabama, consulted me on account of an otitis media suppurata chronicum of left ear since childhood. Under treatment the discharge soon ceased and patient was delighted with results, he having been advised not to expect restoration of hearing. In 1893 this same patient called to have his eyes examined for glasses. On inquiry I learned that at times he "had rush of blood to the head and falling spells." Patient was plethoric, short and stout, with splendid appetite. Was married and had three children, all of whom were healthy and sound. Vision about 20/40th, with no improvement by the use of glasses. Macroscopically eyes looked to be perfectly normal, no evidence of either proptosis or paraplegia of the eye muscles. The ophthalmoscope a tale unfolded and opened to view, a typical case of hemorrhagic neuroretinitis, with a marked number of bright, almost glistening, yellow-white spots, surrounding the macula lutea, which tempted us to believe that albumin would be found in the urine on a chemical examination; but in this we were agreeably disappointed, though reminded that this ophthalmoscopic sign was not only an evidence of retinitis albuminurica, but occasionally (once in a lifetime possibly) it designated a tumor situated in the brain. Patient having no evidence, and his history indicating nothing of a specific trouble, induced me to give an unfavorable prognosis, yet with the hope that the growth might be of a gummy nature, patient was put on cor. sub. with increased doses of kali iod. with the hope of absorbing the same. In a few days vision cleared up and improved somewhat. (let me state, however, that the cause of this improvement was from the absorption of the hemorrhage and *linct-tempore* was the cause and not from the medicine prescribed, as some would have us think). After this delusive (to the patient) improvement in vision of a week or ten days' duration another hemorrhage occurred accompanied by increased blindness. Patient continued to have at times "rush of blood to the head and spells." Inasmuch as we had not given out any hope of encouragement, patient was easily persuaded to leave for other shrines in search of a "relief cure," so the next time I saw patient he was under the care of a famous itinerant Doctor, who would have him believe that in a short while he would be completely cured; and all

that he would have to do would be to take seventeen doses of a different kind of medicine daily and twice a week shut himself up in a closet, and for one hour or more pray to Jesus, and during this solemn occasion to be sure to look to the East and think in a pleasant mood of this mysterious (to the laity) physician, who could diagnose any disease "by a simple touch of the body." Patient remained under the treatment of this "Boston Doctor" for ten or twelve months, and during the time patient was kind enough to call on me for an examination (only) several times, and each proved that his case was going from bad to worse, notwithstanding his faith held out to the last, until his physician was jailed in Chicago. About this time he was advised to go to a neighboring city to consult a distinguished oculist, who kept him under his care for a month, sending him home unimproved. In a short while patient changed to the care of a most competent practitioner of this city, who coincided with me, and told him that he had a tumor on the brain, and also put him on *cor. sub.* and *kali iodidi*. Suffice to say that during all this time, patient continued to call to see me for an examination, which at this stage, the vision was almost totally gone, and locomotion almost impossible. The disease progressed, so patient was sent home, and soon became bedridden and helpless, with (I have been told) increase of "spells," which terminated into hard convulsions, and these became frequent, until death relieved him of his untold sufferings. After death an autopsy was made by Dr. Charles B. Slade, of New York City, who took the growth to New York with him, and sending me the following report:

AUTOPSY.

Brain: markedly cedematous, convolutions flattened. Brain tissue somewhat softened; and the ventricles were filled with a serous fluid.

A circumscribed, well defined tumor about the size of a guinea egg was found located in the posterior fossa of the skull and covered by the cerebellum.

This tumor was attached by a small pedicle about the size of a goose quill to the dura mater, covering the posterior fossa (the pedicle being attached), just to the left of the median line, so that the tumor pressed chiefly on the left lateral lobe of the cerebellum, encroaching on the middle to a great extent.

Tumor was firm, resisting; and enclosed in a dense fibrous capsule, which was only slightly adherent to the surrounding structures.

Microscope showed the tumor to be a fibro-cellular structure with marked predominance of the cellular elements. The arrangement of the fibrous and cellular tissue was devoid of special significance.

(Signed)

CHAS. B. SLADE, M. D.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XII, No. 4.

CHICAGO, APRIL, 1903.

NEW SERIES.

ABSTRACTS OF RECENT OPHTHALMIC LITERATURE.

BY E. A. SHUMWAY, M. D.,
PHILADELPHIA.

Vernal Conjunctivitis.—Marcel Faltz (*Archiv. f. Augenheilk.*, August, 1902,) mentions a point which may be of service in differentiating between Frühjahr's catarrh and trachoma. If the eye is rubbed rapidly with the upper lid, or if the growths on the upper lid are rubbed with a glass rod, the patient with Frühjahr's catarrh will at once complain of severe itching, while the trachomatous patient will complain rather of pain. This symptom is characteristic and may be of especial assistance in the cold seasons, when the other symptoms of the disease are absent, and the conjunctival growths have more or less subsided. He sends his patients away to a cool mountain resort in summer time, and treats those who cannot leave their homes with cold compresses and massages the lesions on the tarsal and ocular conjunctiva with yellow ointment, applied on the end of a glass rod.

Terson (*Annales d' Oculistique*, Nov., 1902) reviews the literature of the same subject and gives descriptions of the microscopical appearances of the growths on the conjunctiva. He believes also that no local treatment has as much effect as the use of yellow ointment (1 to 20, or 1 to 40). The vegetations sometimes disappear entirely, the ointment is not irritating, and never aggravates the condition. The catarrh itself is relieved by the ordinary lotions of zinc, copper, petroleum, acetic acid, ichthyol, nitrate, etc. Protargol is perhaps the best topical application; cold compresses, vapor douches, cocaine, suprarenal extract or adrenalin are also good palliative measures. The tarsal growths sometimes require removal by the knife, and applications of the thermo-cautery. Internally arsenic should be administered and the patient sent to the mountains if possible. The prognosis

is always good; the condition ultimately disappears completely, leaving no traces on the cornea or conjunctiva, so that the general treatment is more important than the local. In the discussion of this paper before the Paris Société d'Optalmologie, Morax doubted the propriety of placing the disease in the list of infectious conditions of the conjunctiva. He thought there was a decided resemblance between it and certain cutaneous diseases, such as lichen, in which there was likewise marked itching.

Congenital Dacryocystitis.—G. Hirsch (*Archiv. f. Augenheilk.*, August, 1902) reports five cases of dacryocystitis in children, which appeared within a few days after birth. In all cases the mothers had well marked leucorrhœa. The diplococcus pneumoniae was found in three of the five cases, and as the condition appeared immediately after birth, he assumes that there was an infection from the vaginal secretion, although he does not deny the possibility of the existence of obstruction of the nasal end of the tear duct. All of the cases healed spontaneously without surgical intervention or catheterization, by the repeated instillation of bichloride solution (1-3000) after thorough expression of the contents of the sac.

The Eyes of the Medical Students in Breslau.—Prof. H. Cohn (*Archiv. f. Augenheilk.*, October, 1902) has made a reexamination of the eyes of the medical students in the University of Breslau, and finds the conditions about the same as in 1866 and 1880. Myopia was present in 60 per cent of those examined, and averaged 3 dioptries. The same figures were found at the two previous examinations, so that the results would seem to be very discouraging, after the years of improved hygienic and prophylactic measures. It was not determined, however, that these students had been educated in hygienically improved schools, or that they had been under proper conditions at home, so that he believes the measures should be increased in strictness in the future. Every school room should be properly lighted and provided with suitable desks, the print should not be too small, and the tasks at home should not be too long. These hygienic precautions must be carried out also at the homes of the scholars. Children are very apt to lean over, in reading or writing, so as to obtain larger retinal images, and the teacher must be untiring in his efforts to make them sit erect. Cohn does not believe that the statistics recently brought forward to show that full correction of the myopia prevents its increase, are sufficient to settle the much mooted question as to the treatment of myopia. He believes,

with Förster, that the intraocular tension is not increased by the effort of accommodation, but by convergence, and that this is to be avoided by moving outward the far point of the eye, by wearing the myopic correction. He is in the habit of prescribing the full correction for distance, unless there is disturbance of vision by the reduction and distortion of the image by the glass, when the myopia is high. For close work, however, he reduces the strength of the glass, taking it off altogether, when the myopia is less than two dioptries, and reducing the amount by two dioptries when the myopia ranges from 2 to 8 dioptries. The convergence for 50 cm. is so little that it can not increase the intraocular pressure, and the patients are made far more comfortable. In the higher grades, especially where vision is poor, he advises strongly against any vocation which requires close work. Where this can not be avoided, he orders a glass much weaker than the full correction, for all near work.

Liebreich (*Annales d'Oculistique*, Nov., 1902) discusses the same subject of the treatment of myopia. He believes that progressive myopia is due to hereditary want of symmetry in the formation of the nasal half of the orbit, whereby the effort of convergence must be excessive, in order to fix at the reading point. In order to avoid this effort he urges strongly the use of prisms, base in, and believes that they are the sole positive remedy against the progress of the myopia. He prescribes them in the prodromal stage, when the children bring their books close to their eyes, although their refraction and acuity of vision are normal, determining the strength of the prism by the result in the tendency to bring the objects close to the eye. Later the prisms may be added to the concave glasses, when the myopia becomes manifest. In the majority of myopes he believes that it is necessary to order different glasses for far and near.

According to *Medical News*, a Philadelphia oculist of wide fame was recently traveling homeward from Pittsburg, when he noticed a fellow passenger, a lady, in evident distress with her eyes. Thinking that she was suffering from the presence of a cinder or other foreign body, he went to her seat and offered his services, saying that he was an oculist. She replied, quite haughtily, that she could wait until she reached Philadelphia, when she expected to consult a specialist "of some repute." The doctor humbly asked her pardon and resumed his seat. Within a few minutes of reaching his office the same young lady walked into his consulting-room.

REPORTS OF SOCIETIES.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Friday, March 13, 1903.

W. Lang, F. R. C. S., president, in the chair.

Mr. Stephen Mayou read a paper on the *Treatment of Trachoma by the X-Rays*. The idea first occurred to him when treating rodent ulcer and lupus of the eyelid when he saw that no serious damage to the globe occurred. The first case cured in this way was shown by him last June. Since then several others have been successfully treated.

The histological changes in living tissues exposed to the x-rays were described, the most important being the superficial irritation capable of being increased and accelerated by the simultaneous application of the irritants such as sulphate of copper; most of the resulting leucocytosis is formed around the trachoma nodules and the cells of rodent ulcer after the x-ray treatment, the reason for this being that they similarly act as irritants.

It was next pointed out that with care the amount of reaction could be regulated, and that the varying degrees of reaction might be compared with the first three degrees of burns described by Dupuytren.

Cases of prolonged exposure of the globe to the x-rays were then instanced where the only bad effects produced, and these only temporarily, were falling out of the eyelashes and conjunctivitis; this latter trouble was also found among workers in the x-rays and in them could be prevented by the use of lead glass spectacles.

In experiments on rabbits and frogs Mr. Mayou found with Fuchs and Kriedl that there was no bleaching of the visual purple. The results of treatment with the x-rays were then compared with those produced by sulphate of copper, jequerity, etc., and it was pointed out that there was less destruction and subsequent cicatrization, as well as far less pain with the former treatment.

The technique of the treatment was next described. The lids were everted, the operator's hands being protected with bismuth ointment and cotton gloves; the cornea was only exposed in severe cases where pannus was present. Owing to the infiltration set up diffi-

culty was found in deciding when treatment should cease. Out of nine cases five remained well; one cleared up but recurred two months later, two others improved and were still under treatment, and in one case of corneal opacity following trachoma the vision improved from P, L, to fingers at three feet.

The advantages of the treatment were: (1) There was less resultant deformity of the lid. (2) It was painless. (3) Pannus cleared more thoroughly. The disadvantages were: (1) All patients did not react to x-rays. (2) It was difficult to say when treatment should cease.

Lantern slides and patients were shown.

Anophthalmos and Microphthalmos in a Chick.—Messrs. Treacher Collins and J. Herbert Parsons described the microscopical appearance of sections through the orbits of a chick in which the right eye appeared to be congenitally absent and the left eye abnormally small. In the right orbit a ring of hyaline cartilage, like that of the sclerotic was found enclosing partly pigmented tissue, similar to that of the choroid. There was no lens, retina, pigment epithelium nor optic nerve. That is to say, there was a complete failure in development of all structures derived from neural epiblast.

The essential element of an eye is a nervous mechanism which serves to receive visual sensations for transmission to the brain. Where this mechanism is completely absent the condition may be accurately described as one of anophthalmos, notwithstanding the presence of some of the subsidiary structures developed from mesoblast.

So far as the writers have been able to ascertain, there is no case of congenital absence of the eye where it has been satisfactorily shown by microscopical examination, that the mesoblastic structures were entirely absent.

On the left side the chick had a microphthalmic eye in which the lens had failed to become separated from the cornea. The capsule of the lens was adherent to the substantia propria of the cornea. Descemet's membrane having failed to develop. The adhesion had obstructed the growth of the iris forwards; above, it had turned back and crept round the posterior surface of the lens; below, its growth had become arrested.

Injuries to the Eye of the Child During Labor.—Drs. Ernest Thomson and Leslie Buchanan communicated some of the clinical and pathological observations which they have made upon this sub-

ject. After indicating the scope of the work done in this connection, Dr. Ernest Thomson gave a résumé of the lesions in the twelve cases observed. These comprised: expulsion of the eyeball, proptosis, injuries to the cornea, hemorrhages into various parts of the eye, and retroversion of the lens and vitreous body without rupture of the globe.

It was here pointed out that, owing to the limit of time, it was then proposed to devote special attention only to the most interesting points in the subject.

Dr. Leslie Buchanan then described in detail three cases of lesion of the cornea, namely: (1) Rupture of the posterior elastic lamina with involvement of corneal tissue. (Healing.) (2) Rupture of the posterior elastic lamina and corneal tissue. (Unhealed.) (3) Rupture of the posterior elastic lamina with abrasion. The points of similarity and difference were briefly explained. The identity of these cases of rupture of the posterior elastic lamina and corneal tissue with the cases already described as traumatic keratitis with linear opacity (trans. Ophth. Soc. V. xxii) from a clinical standpoint, was then pointed out, and the etiology of other corneal opacities seen at birth discussed.

Remark was made upon the very unusual injury, retroversion of the lens and vitreous body, and the nature and origin of the case somewhat fully explained. In conclusion the subject of traumatic exophthalmos was dealt with and allusion made to the connection between them and the localized indentation of the cranial bones due to pressure against the sacral promontory. The subject was illustrated by macroscopic and microscopic specimens and diagrams.

Mr. Lawford read notes of a case of *complete dislocation of the eyeball forwards*, occurring in a child aet. 7, the result of a fall against an iron fender. Reduction was easily effected under chloroform and recovery ensued with no defect of sight and no limitation of the movements of the eyeball. Slight proptosis was noticeable for one month after the accident, but no restriction of ocular movements could be detected even three days after the reduction of the dislocation.

C. DEVEREUX, MARSHALL, F. R. C. S.

SECTION ON OPHTHALMOLOGY—COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting March 17, 1903. Dr. S. D. Risley, chairman, presiding.
Subject for discussion: *The treatment of Myopia.*

Dr. Geo. C. Harlan, in introducing the subject for discussion, gave a short history of the treatment of myopia. He said that formerly there was an almost universal dread among ophthalmic surgeons, of full constant correction of myopia, particularly of the higher grades, but that recently a change of opinion and of practice had become quite general. Quotations from standard European authorities of comparatively recent date showed that undercorrection, especially for near work, was the universal teaching. In America, on the contrary, de Schweinitz, in his text book, and Duane, in his translation of Fuchs, advocate constant full correction as a rule.

In a discussion of the subject, at the meeting of the American Ophthalmological Society in 1892, a number of the members stated that they approved and practiced this method. More recently it has been gaining in favor in Europe, and at the last meeting of the Heidelberg Society it met with general acceptance, in fact, was opposed by none. The theory that the nearer the eyes can be approximated to the normal condition of emmetropia, the more comfortably and safely they can work, seems to be rapidly gaining ground.

The theory of undercorrection seems to be based principally upon the idea that accommodation rather than excessive convergence is the chief factor in progressive myopia, but it is now being more and more admitted that excessive convergence without accommodation is an important factor. The pressure of the external muscles tends to elongate the ball, and the strain of muscular asthenopia keeps up a constant irritation and congestion. The high myope, while encroaching upon his reserve of convergence, suppresses his accommodation, thus disturbing the close association of these two functions. Graefe, more than 30 years ago, strongly urged the performance of tenotomy of the external rectus as a curative measure in cases of progressive myopia associated with insufficiency of convergence. Usually the convergence will fall into line when the accommodation is put to work by the proper concave glass; if it does not, prisms or tenotomy are in order.

Of course, the full constant correction of high myopia is advocated only as a general rule to which there may be many exceptions, and each case should be studied and decided on its own merits.

The diminution of the retinal image by concave glasses, and the consequent tendency to bring objects closer to secure a wider visual angle, should always be borne in mind, and the acuteness of vision and the range of accommodation should receive careful consideration. If full correction does not give fair vision, particularly if there are decided choroidal changes, it is sometimes well to throw off two or three diopters from the glass for constant use, and to give them to the patient in hook-fronts or lorgnettes, or even in a single glass hung about the neck, to be added occasionally for distant vision; and if the near point is farther than six or eight inches, bifocal glasses will often offer the best solution of the problem.

Dr. H. F. Hansell classified myopia under three heads: (1) congenital, (2) acquired, and (3) hereditary. In the first, the myopia is only the state of the refraction, and is a symptom, entirely secondary to the congenital disease of the sclera and dependent choroidal atrophy. It is in no sense the disease itself. It is found in childhood, and in individuals who have no education and whose progenitors have not been subjected to the strain of literary pursuits, for example, in the peasants who have emigrated to America. Concave lenses, several diopters weaker than the full correction, will materially improve vision, and possibly postpone for some years further degenerative processes.

Acquired myopia includes those cases that were born hyperopic, but through educational requirements the refraction changes to emmetropia and finally into myopia. The most influential factor in inducing this increase in refraction is astigmatism. The tendency to ectasia of the sclera is strengthened in the third class by inherited weakness of the sclera, which, in combination with the other causes, leads to the rapid development of the myopia.

In the optical treatment, the speaker's practice is to modify the strength of the lens in accordance with the degree, with the age, and with the relative strengths of adduction and abduction. For the distance, he prescribes as near a full correction as can be worn with comfort, believing that exophoria, so frequent a complication, is held in abeyance by sharp acuity of vision of each eye rather than by treatment directed to the muscles. For the near, he advocates less than the full correction, always in high degrees at any age, and in moderate degrees in adults and sometimes in children, for the reason that the myopic eye should be considered as a "sick" eye, and hence accommodation should not be forced. In the correction

of myopia higher than 8 D. or 10 D., he uses no cycloplegic. In all degrees the exact amount and axis of astigmatism should be learned and corrected.

Dr. G. E. de Schweinitz, after referring to the treatment of young persons whose eyes were passing gradually from hyperopic into myopic refraction, and the great importance that the recognition of such alterations in refraction, after repeated examinations, should have in the prevention of myopia, particularly in the recognition of the smallest degrees of astigmatism, said that in his remarks on the treatment of fully developed myopia he referred only to myopes with reasonably healthy eye-grounds, whose visual acuity could be raised by concave glasses to the normal standard, and did not take into consideration at that time forms of so-called pernicious myopia in which choroidal and other changes in the eye were evident, and in which, as Dr. Hansell had well said, the myopia was a symptom of disease.

Dr. de Schweinitz believed that young persons under 25, with good vision and a moderate degree of myopia (under 6 D.), should wear the full correction constantly if accommodation is ample and no signs of fatigue are evident. Indeed, he was prepared to say that the same rule was applicable to patients until they had reached those years when the accommodation must necessarily receive help, or when examination showed that the amplitude of accommodation was not equal to the necessities of the patient's life. He agreed with Dr. Jackson that full correction is the object to be attained for young persons with normal visual acuity and binocular near vision, no matter how high their myopia, provided the lens selected should not be an overcorrection when brought close to the eye. He fully understood and agreed that there were many exceptions to these rules, and, as Dr. Harlan has said, each case should be studied and decided on its own merits, but, other things being equal, he considered it a positive misfortune that when young people first came for the correction of their myopia they should be given the so-called under-corrections, because once undercorrection having been given, it was difficult to alter it to a full correction. He believed with Priestly-Smith that every youthful myopia should be suspected of a tendency to increase, and therefore should be re-examined at regular intervals, which intervals should not exceed in length twelve months, and that at each such examination full and prolonged mydriasis should be employed. He was satisfied that this method of treatment

tended to check myopia, and although he had in the earlier portion of his career, according to teaching then rather prevalent, given under-corrections, he had not done so, other things being equal, for the last ten or fifteen years, and had been satisfied that his results justified the course pursued. Dr. de Schweinitz was very sure that the fitting of glasses was not the only therapeutic measure suited to the treatment of myopia, but that the tendency to congestion of the choroid coat should be combatted by the administration of the various alternatives from time to time, and that active mydriasis with some drug, than which there was no better than atropin, for prolonged periods at a time when the recorrections before mentioned were made, had a distinct therapeutic value. He was satisfied that those who had expressed much dissatisfaction with what are known as full corrections often failed because they had not employed a sufficiently active mydriatic. Dr. de Schweinitz enumerated the cases of myopia which did not permit a full correction, independently of those exhibiting pathologic alterations in the fundus, and referred especially to the fact that he based his practice of giving full corrections in myopia entirely on the results obtained by the examination of the visual acuity, the range of accommodation, the character of the myopia and the condition of the external ocular muscles. He was most particular to measure and correct the smallest degrees of astigmatism, and was satisfied that among his most grateful patients he numbered those to whom he had given full correcting glasses for the neutralization of their myopia and myopic astigmatism, or whom he had taught to use full correcting glasses when they had previously struggled against the constant disadvantage of an undercorrection when viewing distant objects.

Dr. George M. Gould said: As we all know, every case is an individual study, and hardly any rule can be formulated as to the treatment of myopia which has not as many exceptions as instances in proof. The fact which renders almost all previous opinions, statistics, and data valueless is the omission of an accurate correction of the astigmatism. Our foreign colleagues have not cared to do this and have not chosen the proper means to do it. Without mydriasis and subjective testing the astigmatism in myopia cannot be found, and this vitiates all conclusions. The same may be said of anisometropia, equally neglected, and equally powerful to affect results. Then, I have never been able to determine what is meant by "full correction." It is easy to bring patients with myopia to normal

acuteness of vision and still the ametropia may be incorrectly diagnosed, may be undercorrected or overcorrected. It all depends upon the individual oculist, his methods, keenness of observation, conscientiousness, etc. As for myself, I never fully correct myopia, for constant use, and I believe such advice is wrong. My case records show that large portions of myopic patients have passed through the care of other oculists and are relieved of their reflex and local troubles by a modified glass or by undercorrection. One case may illustrate the evils of full or rather approximately full correction. A patient was given nearly full correction of a moderately high myopia, to be used only in riding or at the theater, etc. Every time he wears these glasses he at once gets a violent cold, with hoarseness and coryza. In an hour after taking the glasses off and return to his lower correction, given for house and business purposes, his "cold" disappears. This has happened hundreds of times. If these latter glasses become bent or maladjusted, he also gets his "cold," and goes to the optician to be cured at once.

Dr. T. H. Fenton believed in prescribing the full correcting lens for distance, but it was his custom to order a weaker glass for near work. The amount of reduction in the strength of the reading glass varied with the degree of defect, the age of the patient and the power of adduction. In high degrees of error he frequently gave one-half the full correcting lens for near use.

Dr. S. D. Risley, in closing the discussion, said that on careful analysis and in actual practice it could probably be shown that there was less actual divergence of opinions than appeared in any cursory view of the remarks made by the various speakers, but, nevertheless, practice in the treatment of myopia would be affected by the views entertained regarding the etiology and essential nature of the condition. Personally, he considered the subject one of the most serious confronting the ophthalmic surgeon. The classification made by Dr. Hansell was the conventional one, but in his own experience congenital myopia had been extremely rare, and, so far as he could recall, had occurred only among imbecile children who had other marked anatomical anomalies in the form of the skull. Indeed, he had seen very few cases of myopia before six or seven years of age.

Regarding heredity, he was not willing to accept it as a potent factor in the etiology of the affection, except in so far as certain hereditary anatomical peculiarities in the form of the skull, which led to abnormalities in the size and shape of the bony orbit, might

be regarded as an hereditary tendency. From an analysis of a large number of myopic patients treated in private practice, he found that myopic children quite as frequently had parents with hypermetropic astigmatism, and that the children of myopic parents were far more frequently hypermetropic than myopic. The only hereditary bias, beyond question, was the unvarying fact of the heredity of the hypermetropic eye with astigmatism and the absolute abnormalities of binocular balance.

This was due to the distortions of the family skull and the resulting abnormal shape of the orbit, which affected the form of the eyeball, giving rise to astigmatism, anisometropia, and abnormalities in the origin, line of direction, and attachment of the muscles to the globe. The eye strain caused by the effort to secure accurate binocular vision in the presence of these defective conditions set up congestive, irritative, and inflammatory states of the intra-ocular membranes which were, he believed, the important etiologic factors in the myopic eye. The intra-ocular congestion probably gave rise to a degree of tension of the globe which the readily yielding tissues—*i. e.*, the sclera—of childhood were not prepared to resist, and hence the distention or stretching of the globe.

Regarding the full optical corrections of myopia, the idea was by no means a new one, since he had, from his earliest experience, given full correcting glasses for distance, believing that the scientific procedure was to first determine the static refraction of the eye, and then reduce the optical conditions to emmetropia, since believed the emmetropic to be the model eye. He was confirmed in this view by the laboratory studies of Donders, whose book was his first text book. It would be recalled by those familiar with the subject that Donders had shown that myopes who had worn correcting glasses for a long time manifested, as shown by his charts, a relative range and region of accommodation and convergence which closely approximated that of emmetropia, the chart differing very widely from that of the uncorrected myope.

This, to him, afforded a strong argument in favor of full corrections, but, as Dr. Gould had very correctly claimed, it was impossible to establish a rule which would be applicable to all cases. There were many eyes too tender to bear the strain of accommodation and convergence at the near-point.

It was always to be borne in mind, as Dr. Hansell had so well said, following Donders in this, that the myopic eye is a sick eye.

It would be found that the conclusions regarding full corrections, based upon the experience of any individual surgeon, bear very close relation to his methods and the care with which he sought to correct any existing astigmatism or muscular imbalance. Undercorrections were unquestionably safer for the patient with bad eyes, where manifest corrections were made or in the absence of a careful analysis of all existing conditions. Personally he believed that in eyes with progressive myopia, no trustworthy measure of the static refraction of the eye could be made until under prolonged treatment with a strong and enduring mydriatic and complete rest the pathologic conditions of the fundus oculi had subsided. He had many times seen, under the most careful daily study, the myopia diminish day by day, changes taking place in both the degree of astigmatism and the direction of the corneal meridians, as the eye settled back toward a state of rest and health. Any glass, therefore, selected by subjective or even objective methods of examination, and ordered at the first trial, would not have represented the true static error, and would not have been worn either safely or comfortably. He contended, therefore, that the mydriatic in these sick eyes should be used not only as a cycloplegic but as a therapeutic measure, and that only by this means could the actual static refraction of the eyes be determined; that unless so determined in cases of progressive myopia undercorrecting glasses were safer.

Another point which could not be safely overlooked was that we could not expect these tender eyeballs, with blood vessels once distended and a sclerotic that had once given way under the strain of work, to resume continuous near work safely, except under the most favorable conditions. It was at this point, and at this only, he must differ with the views expressed by Dr. de Schweinitz. Except in the lower degrees he thought that work at the near-point in progressive myopia was done more safely with a glass giving an artificial far-point, just beyond the working distance, thus removing all strain on the accommodation and at the same time relieve the strain upon the convergence by prisms base in or a careful decentering of the glasses. This could often be done by a pair of bifocal glasses centered for infinity.

In concluding, he said that it was better to give such a reading glass for constant wear, with which no effort for distinct vision would be made, than to give approximate corrections, since a blurred image was always distressing because of the unconscious effort of the

accommodation to focus it. He illustrated this point by calling attention to the restfulness of the fine adjustment of the microscope, and by the distressing experience of spending an evening in looking at badly focussed pictures thrown on a screen which were sure to send the observer home with tired eyes and a headache.

WILLIAM M. SWEET,
Clerk of Section.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Denver meeting of March 21st, 1903.

Reported by Melville Black, M. D.

Dr. D. H. Coover, chairman for the evening. Subject for discussion, *Lesions of the Macula*.

Dr. Coover gave a demonstration of the *Thorner Ophthalmoscope*. Several cases of obscure visual disturbance were examined with this instrument, but it did not throw any additional light upon the causation.

Dr. William C. Bane, of Denver, brought three cases before the society. His first case was that of a woman thirty years of age who had sub-acute glaucoma. The attacks had been held in check by the use of eserine. Dr. Bane wanted the expression of the society upon what operation would be advisable. His second case was that of a man upon whom he had operated for symblepharon. The upper lid had been adherent to the cornea with ocul-palpebral adhesions all the way up to and including the fornix. He had severed the adhesions and after covering the ocular raw surface with a mucous graft from the lip he placed a sheet of lead over it that extended to each canthus and well up into fornix. The result was that the symblepharon was completely severed except in the fornix. The cornea is still quite opaque. His third case was a woman with central scotoma, whom he had brought before the society several times before, and whom he now desired to have examined with the Thorner ophthalmoscope. The Thorner ophthalmoscope was accordingly used, but it did not show anything in the fundus that had not been seen with the ordinary ophthalmoscope.

Dr. Edward Jackson of Denver brought before the society Mrs. S., aged 21, that the Thorner ophthalmoscope might be used. She gave no history of recent acute disease, or any source or evidence of lead or

other poisoning. She had been wearing glasses for seven years. Lately she had suffered from daily headaches and some impairment of vision, with R. and L. + .50 Sph., vision 4/8 partly. With the ophthalmoscope the discs were found rather hazy, and the temporal quadrant pale and slightly greenish. The macula was relatively light in color, almost as light as the surrounding fundus. The foveal reflex was faint, broad and irregularly triangular. She had been under observation two months, during which time she had taken strychnia up to 1/12 grain doses three times a day. Her headaches were much better; but vision had declined to 4/12. The central color perception was perfect and there was no limitation of the field. The Thorner ophthalmoscope was used but nothing could be seen with it that had not been seen with the ordinary ophthalmoscope.

Dr. Coover brought before the society a man who came to him in 1894 who had sustained a *penetrating wound of sclero-corneal junction of right eye* from a piece of wood striking eye while he was splitting wood. The wound was in the temporal quadrant and was filled with iris, choroid, retina and vitreous. After clearing wound of these membranes four sutures were introduced and iced cloths applied. The sutures were removed on the fourth day, good union having been secured. Some months after the vision was 20/40 W. — 5.50 C. ax. 45. The lens was dislocated downward and forward, but was clear. Four years ago the lens became opaque. Lately he has had recurring hemorrhages into anterior chamber and the lens has become discolored so that the cosmetic appearance of the eye is very bad. He also has some increase of tension at times. The opaque discolored lens has been partially absorbed and is now kidney-shaped and lies anterior to the iris, if there is any iris. There seems to be a number of adhesions between the lens and the old wound. Dr. Coover desired to know what kind of an operation should be performed.

Dr. Melville Black of Denver brought before the society a woman aged 36 from whom he *removed the clear lens of her right eye for high myopia*. Her best vision was O. D. 5/27 — 20.00 \ominus + 1.50 ax. 105. O. S. — 18.00 \ominus + 1.50 ax. 75. February 4th the lens was freely needled, the anterior chamber being emptied purposely as the needle was withdrawn. Four days later, the lens being thoroughly opaque the anterior chamber was opened from above at sclero-corneal junction with a keratome and the soft lens matter was removed by pressure and counterpressure and syringing with normal salt solution. The healing was uneventful. Today she has a clear pupil with the exception of some capsule above and below, with vision of 5/15 without correction.

A minus .75 cyl. ax. 180 improves vision slightly but not enough to enable her to make out any more letters.

Discussion.—In Dr. Bane's case of glaucoma the general impression was that iridectomy would be most likely to prove successful, but that sympathectomy might be equally serviceable, inasmuch as the excreting angle was evidently not blocked.

Dr. Black advised Dr. Bane to try thiosinamine in his case of symblepharon to assist in absorbing the corneal opacity.

Discussion upon Dr. Coover's case brought out a unanimity of opinion that it would prove a difficult case to operate upon, but that operation of some kind was necessary not only for cosmetic reasons but to save the eye if possible and prevent sympathetic trouble of its fellow. There was some difference of opinion as to whether the section should be made at the site of the old wound or above that situation, also if it was advisable to attack the adhesions between the lens and old wound first or last in the lens extraction. Dr. Black contended that if attacked first hemorrhage would occur and obscure the field of operation, while Dr. Jackson believed that by making the section with a keratome at the site of the old wound the adhesions could be first broken up easily and the removal of the lens facilitated. According to Dr. Bane the hemorrhage could be washed from the anterior chamber by syringing. Dr. Coover thought some of using a linear knife to make the section and at the same time divide the adhesions. What he most feared was that the vitreous was fluid and that the eye would collapse as soon as opened. Dr. E. W. Stevens thought couching a possible procedure to be thought of.

Dr. Edward Jackson read a paper entitled "*Ophthalmoscopic Examination of the Macula.*"

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

REPORT OF MEETING OF FEBRUARY 10TH, 1903.

BY BROWN PUSEY, M. D., SECRETARY.

The president, Dr. Chas. H. Beard, in the chair.

Dr. H. Gradle showed a *baby with congenital cataracts and unusual thickening of the lenticular capsules*. The lenses were entirely opaque. The discission needle could not penetrate the center of the capsule. Subsequently he introduced the needle and later on the Knapp knife, through the periphery of the capsule. The lens

could be lacerated but no effect was visible in the capsule. After three dissections in each eye, without any irritative reaction, the capsule was extracted with iris forceps through a linear incision. One lens was found partly, the other nearly entirely, absorbed. Smooth healing with perfectly black pupils. The child, now 16 months old, was very slow to learn the use of its eyes, but after several months acted as if she enjoyed good sight.

Dr. Gradle also showed *three cases of retinal detachment with recovery*. The first, a man, age 31 years, highly myopic, had had a small detachment downward in the right eye since July. He was a patient of Dr. M. M. Ritter, seen by Gradle in consultation and during Dr. R's absence. Under subconjunctival injections of 2 per cent salt solution begun in September, he recovered entirely in about four weeks, and vision rose from fingers at six feet to 20/60 with —16 D. No change to date. The second case was a girl of 17 years with increasing myopia. The R. E. previously normal in sight with —6 D got blurred 10 days before examination. Flat detachment upward and outward. Rest on back. Thiosinamine and subconjunctival injections gave no result. Two weeks later on arising the detachment began to wander around the periphery, involving the entire retina except upward and showing a small steep bag downward. Treatment had no apparent effect. During the sixth week there was no treatment and when she returned at the end of that time the detachment was nearly gone, and a few days later the eye was normal. But with perfect field the central vision did not rise above 20/200 (corrected). Was the temporary recovery due to the treatment? After one month complete relapse of extensive detachment. The third patient, the mother of this girl, showed an extensive detachment of the temporal half of the retina (R. E.) in 1898. Myopia about 4 D and nasal half of the field practically blind with central V=fingers at four feet. Other eye normal and not myopic. As the disease had begun more than half a year ago no promise could be made as to improvement and Mrs. H. did not submit to treatment. At the present time the retina is completely reattached spontaneously and the field is perfect. But central V. did not rise above fingers at six feet with —4. The periphery shows a few faint inflammatory foci in the retina.

Dr. Casey Wood presented two cases illustrating the *removal of the tarsus in certain forms of chronic trachoma*. In the first instance both superior tarsal plates had been excised, after the method first suggested by Heisrath (1882). The patient, now 40 years of

age, had been attacked by the disease in both eyes twenty-one years ago and had been almost continuously under treatment, both in this country and Europe. In May, 1897, he was seen by Dr. Wood, who found him suffering from well marked trachoma in all four lids. The corneæ were covered with superficial scar markings and an almost complete pannus. On the right side was an anterior staphyloma for which Galezowski had done an iridectomy. The left upper lid having developed some trachomatous granular masses, these were removed by the forceps with temporary relief to the symptoms. Subsequent treatment, lasting all summer, was not satisfactory, although the granulations, secretions and symptoms were not so prominent. The patient was attacked from time to time by pin-point ulcers and became much discouraged. Vision in the left eye never rose higher than $\frac{7}{200}$ and words of Jaeger iv, not improved by lenses; in the right it was finger counting at a few inches. The staphyloma corneæ, right, gradually increased and as the lens became hazy and there was very little conjunctival discharge, Dr. Wood removed the crystalline lens with no particular increase in the visual acuity, but with arrest of the staphylomatous process. Shortly afterwards (September, 1897) both upper tarsi were removed and from that date improvement set in; the pannus largely cleared, he had no more corneal ulcers, all acute symptoms disappeared and today he is cured of his trachoma, although he still bears the scars of the disease. With correction $VL=\frac{2}{7}$ and words of Jaeger ii at 12 cm.

The more recent case was operated on by Dr. Thomas A. Woodruff. Maggie D., æt. 27, had trachoma in both eyes for 12 years and exhibited frequent exacerbations of the acute symptoms during that time. The whole family have had trachoma—father, mother, and several sisters and brothers. She was seen Nov. 2, 1902, for an acute attack beginning four weeks previously. A well developed pannus covered the upper two-thirds of the left cornea, points in which were stained by fluorescein. The right eye was less affected. Trichiasis in all four lids, the right upper one having been operated on for entropion. Cold applications, mild antiseptic collyria and the use of argyrol (10 to 20 per cent) afforded much relief, but the irritative symptoms persisted. The right upper tarsal plate was removed Jan. 8, 1903, and the left one the following week. Patient has made an uneventful recovery, both eyes are quiet and vision has already improved (from partial disappearance of the corneal opacities) fifty per cent.

In an experience of thirty-five cases (twenty-one patients)

of chronic trachoma which Dr. Wood thought proper for this procedure he believes it is indicated in those instances where the disease has lasted several years and has resisted other and milder forms of treatment; these are usually cured, or at least much benefited, by tarsal excision. In them the infection is uniformly subconjunctival and there are nearly always trachomatous nodules in the tarsus itself. They are, of course, the cases in which one usually finds trichiasis, entropion, pannus, corneal ulcer, partially atrophied conjunctivæ, etc., and are not likely to be affected by superficial applications. Dr. Wood has never seen *as a result of the operation*, entropion, inability to shut the lids, symblepharon of any consequence, corneal ulcer, undue widening of the interpalpebral aperture or any other serious sequel. The granulations that fill the space formerly occupied by the tarsus often become exuberant and present at the line of the incision in the palpebral conjunctiva, but these soon subside when snipped off and touched with the nitrate of silver or alum stick. A description of the various steps in the operation has been published by Kuhnt, Casey Wood, and others.

In discussing Dr. Wood's cases Dr. Wm. H. Wilder said that some years ago, after reading an article on this subject by Dr. Wood, he decided to try the operation on some suitable cases at the Illinois Eye and Ear Infirmary, where there is such an abundance of trachomatous material. The cases selected were those in which, from the long duration of the disease, the tarsus had become greatly infiltrated and hypertrophied, and in which continuous treatment had failed to reduce the enlarged tarsus or prevent its irritating pressure effects on the eyeball. In several such cases the excision of the tarsus seemed to produce a very beneficial effect on the disease in the conjunctiva and the condition of the cornea. From his limited experience he said he would hardly speak of the operation as a simple or easy one, for he found it extremely difficult, if not impossible, to separate the conjunctiva from the tarsus, and so it practically amounted to removing all the conjunctiva that covered the excised portion of tarsus. That unfortunate results may follow this operation is illustrated by the fact that, in one of his cases, ulceration of the cornea occurred, followed by panophthalmitis and loss of the eye. Whether the ulceration of the cornea was caused by the presence of the stitches or was an independent affair arising in a cornea that was already greatly affected by the disease, are debatable questions. He was inclined to believe the latter furnishes the correct explanation.

Dr. Wilder believes the indications for the operation are found

in those cases where there is enlargement of the tarsus from infiltration of the disease, that, after a reasonable time, do not yield to the ordinary methods of treatment.

Dr. H. W. Woodruff *reported cases of extensive symblepharon and of shrunken and obliterated culs-de-sac, relieved by skin grafting*, with a description of the operation. A thorough dissection of the lid from the ball with removal of cicatricial tissue is first made. Have the cul-de-sac large in all dimensions. A plate is cut from a sheet of block tin, which will snugly fit into the new formed cul-de-sac. Four holes are made for sutures, two at the outer and two at the inner angles of the plate, to correspond to the lid margin. A Thiersch graft is taken from the inner surface of the arm, about one-third wider and more than three times as long as the plate. It is at once placed upon the plate with its raw surfaces external. The plate and graft are then pushed into the cul-de-sac so that the inner flap approximates the raw surface of the ball and the outer flap the raw lid surface. Plate is then sutured to the lid. The eye is dressed in the usual manner. The plate should be left in place for four days.

Six cases were reported and five were shown.

Cases Shown.—Case II. A symblepharon of the lower nasal quadrant of the cornea. Present result, eighteen months after the operation, no shrinking of the graft and no return of the symblepharon. *Case III.* Atrophied cul-de-sac. Patient had not worn an artificial eye for ten years. Result, ten months after the operation, shows a perfect cul-de-sac, depth 15 mm. An artificial eye has been worn since one month after the operation. *Case IV.* Both culs-de-sac closed by adhesions. Operations gave a good result. *Case V.* Both upper and lower culs-de-sac restored by operation. Present depth 20 mm. *Case VI.* Extensive symblepharon covering the lower half of the cornea and closing the lower cul-de-sac. Result, one month after operation, shows a cul-de-sac 15 mm. in depth.

Conclusions.—The operation relieves the symblepharon permanently. Advantages of the use of the plate over any other method of skin grafting are: (1) It enables one to place the graft at once in the position wanted. (2) It holds it down in the very bottom of the artificial cul-de-sac until it has adhered, so that the raw surfaces of the lid and ball in no part can again unite with each other in this angle, and even when the graft lives, gradually push it upward. (3) With the plate, accurate approximation and rest are secured.

The author was brought to try this operation through Dr. Boettcher, who had had a case operated on successfully by Dr. Hotz by this method.

In the discussion of Dr. Woodruff's report Dr. Thomas Faith said he had used the method with most gratifying results.

Dr. Hotz said that the series of Dr. Woodruff's symblepharon cases is a very valuable contribution to plastic eye surgery, for they must convince the most skeptic that symblepharon is not as desperate a condition as depicted in the textbooks. To him these cases are of especial interest, because they verify what he has been advocating the past 10 years, *i. e.*, that symblepharon can be permanently relieved by the use of Thiersch grafts. The chief and most essential condition of success is deep dissection in separating the lid from the eyeball; we must cut down until every strand of cicatricial tissue is severed and healthy tissue is reached. If scar tissue is left below the newly made fornix the graft will be pushed up and the fornix completely obliterated again. The use of the lead plates introduced by him in 1898 has simplified the operation materially, as it did away with the very laborious work of suturing the graft all around to the lid and the globe. The tin plate suggested to use by Dr. Boettcher two years ago is a still better, because more flexible material. The plate serves as a splint to stiffen the lid; it keeps the graft in perfect contact with the wound surfaces; it prevents the eyeball from moving and thus from dragging upon the graft; and it allows us to draw the lid away from the globe sufficiently to inspect the ocular portion of the graft and to cleanse the eye thoroughly by irrigation.

Dr. Hotz does not mount the graft on the plate, but transports it on the razor to the eye and spreads it out over the ocular wound first, where he fastens it on each side to the ocular conjunctiva by two fine sutures, one over the cornea and one over the fornix. Then the other portion of the graft is spread out over the lid surface and the plate, which has been carefully shaped before the graft is cut, is put in and tied to the lid margin.

In the March number of the *Annals of Gynecology and Pediatrics*, Dr. S. D. Risley has an article, Good Vision an Important Factor in the Educational Process. In the article there is incorporated a copy of the report of the sub-committee (of which Dr. Risley is chairman) to the committee on medical examination of the schools of the Public Education Association, of Philadelphia, and copies of the cards of instruction for the teachers, and the card for the permanent record of the student, and that to be sent to the parent or guardian of any child whose vision is found to be defective.

NOTES AND NEWS.

ITEMS FOR THIS DEPARTMENT SHOULD BE SENT TO
DR. BROWN PUSEY, 31 WASHINGTON ST., CHICAGO.

Dr. W. T. Montgomery has been having a vacation at Asheville, N. C.

Dr. J. Elliott Colburn has resigned as Professor of Ophthalmology in the Chicago Polyclinic.

The Thirty-fourth Annual Report of the Brooklyn Eye and Ear Hospital shows that 9,753 new eye cases were received at that institution last year.

Under the will of the late Lavinia E. Frey, of Baltimore, the Presbyterian Eye, Ear and Throat Charity Hospital of that city is bequeathed \$500.00.

The Appellate Court of Indiana, in the case of Van Camp Hardware Co. vs. O'Brien, allowed \$25,000 damages in the case of a girl, nine years of age, who lost the sight of her left eye by accident.

A competitive examination for positions on the house-staff of the Manhattan Eye and Ear Hospital, New York, will be held at the hospital at two o'clock on May first. Applicants should address Dr. J. B. Clemens, Secretary of the Examining Board.

Dr. Casey Wood, one of the editors of THE OPHTHALMIC RECORD, has been honored by his Alma Mater, the University of Bishops College, with the degree of Doctor of Civil Law (D. C. L.) ; this being the highest literary degree granted by the University.

Dr. George Ruchling, who, on October 1st, 1868, founded the Maryland Eye and Ear Infirmary (now the Eye and Ear Department of the Maryland General Hospital), celebrated, March 23rd, the thirty-fifth anniversary of his arrival in Baltimore. Dr. Ruchling is a native of Hesse-Darmstadt.

Report of the Case of a Child who was Born Without Eyes, by Dr. James M. Ball, of St. Louis, and Some Remarks on the Histology and Pathology of the Eye, by Dr. F. B. Tiffany, of Kansas City, were among the papers read at the Tri-State Medical Society held at Hannibal, Missouri, April 2 and 3.

"After two years of total blindness George Lewis, of Morristown, is able to see. His sight has been restored by a form of the Lorenz method of bloodless surgery. After the first treatment he could see well enough to walk home, and now, after two weeks, he is able to read!"—*New York Dispatch in Chicago newspapers.*

The St. Louis Medical Society of Missouri gave a banquet on Tuesday evening, April 14th, 1903, at the Planters Hotel, in honor of Drs. Simon Pollak, William Johnston, William M. McPheeters, John Bates Johnson. Dr. Pollak is one of the pioneers in ophthalmology in America. He graduated at the University of Vienna in 1835.

The Practical Details of Cataract Extraction is the title of a book written by H. Herbert, surgeon in charge of the Sir Cowasjee Jehangir Ophthalmic Hospital, Bombay, and just published by Bailliere, Tindall and Cox, London. The work is based on an experience such as can only be had in India. A good review of it is published in the London Lancet, March 28, 1903, p. 898.

Courses for physicians on the normal and pathological anatomy—gross and microscopic—of the eye, ear and nasal cavities are offered at the University of Chicago, beginning June 18th, and continuing through July. The work will be given in the laboratories of anatomy and pathology of the university; it will be arranged to occupy the student's time all day for five days of the week. The eye work will be given by Dr. Brown Pusey, that on the ear and nasal cavities by Dr. George E. Shambaugh.

One of the papers read at the meeting of the Ophthalmological Society of the United Kingdom, held on March 13th, was on X-rays in Trachoma, by Dr. Mayou. In comparing the results of treatment by X-rays with those produced by copper sulphate, jequirity and other irritants, it was pointed out that there was less destruction of tissue and subsequent cicatrization, as well as less pain, with the X-rays. Out of nine cases five remained well, one cleared up but recurred, two others improved and were still under treatment.

Adulteration Causes Blindness and Death.—A correspondent sends the following extract from the "*Waukon Standard*," suggesting that the fatal result may have been due to lemon extract made with wood instead of grain alcohol: "Clarence Floyd, a printer and newspaper writer of Center Point, Iowa, died last week after a protracted period of heavy drinking. Lately he had been unable to purchase

liquor, no one daring to sell it to him, but somehow he got hold of two dozen bottles of lemon extract. He drank all but three or four of these bottles, and he went blind on the streets of Vinton. Then he grew violent, and physicians were summoned. They could do nothing for him, and he died in horrible agony."—*Nour. Amer. Med. Ass'n*, April 4, 1903.

The Eyesight of School Children.—For some time the London School Board has had under consideration the question of the eyesight of the children, and the means to be taken for its preservation when defective. As a result, it has been decided to appoint six oculists. The general result of the preliminary test showed that while eighty per cent of the children in the schools were found to have normal vision and ten per cent fair vision, the sight of ten per cent was bad, and of these two or three per cent were very bad. Such defects of vision as existed were not due chiefly to fine work or bad lighting in the schools, but to social and nutritive conditions and to racial peculiarities, the proportion of those who had very bad sight being larger in the poorer schools than in those which were well-to-do, and larger in those schools which were predominantly Jewish than in those which were mainly Christians. The recommendation of the medical officer was that in future every child, when first admitted into a senior department, should be examined by the class teacher, and a vision record made, such test being repeated annually.—*Journal of Amer. Med. Association*, April 4.

The bill prepared by the State Organization of Opticians and pushed through the Indiana legislature "to define and regulate the practice of Optometry and to create a board of examiners for same," was vetoed by the Governor. Commenting on this bill, the Governor said that he saw in it only the chance to establish an expensive state commission that would mulct one class of citizens out of exorbitant license and examination fees, without benefiting anybody in particular except the new commission. By the terms of the bill the practice of optometry was defined as "The employment of skilled means to determine the accommodative and refractive conditions of the eye, its requirements, the scope of its functions in general and the act of adapting lenses for the relief of eye-strain and the betterment of vision: Provided, The practice of optometry does not include the dispensing of medicine for the relief or cure of disease." The bill provided that it should be unlawful for any person to practice optometry in the state of Indiana unless he obtained a

certificate of registration from the board created by the bill—the Indiana State Board of Examiners in Optometry.

Royal London Ophthalmic Hospital.—The annual general meeting of the governors of this institution was held recently, Mr. H. P. Sturgis presiding. The chairman said that in the past year the attendances had considerably increased and eighteen beds which were opened through the liberality of King Edward's Hospital Fund were at once occupied. During the present year they had been enabled to open another thirty beds, also through the liberality of King Edward's Hospital Fund, and the number of available beds at the present time was 118. Turning to the question of finance, he pointed out that the deficit for this year was £5,400, against £5,100 in the previous year. This deficit was chiefly due to the loan obtained in 1901 from the Charity Commissioners in order to keep the hospital going at that time. One serious item in the expenses was the rates, which had increased to nearly £1,000 a year. In common with a great many other managers of hospitals they felt that hospitals should be relieved from paying rates and were taking steps to get this rectified. The total expenditure last year amounted to nearly £12,000, and in the current year it would be rather more on account of the extra beds which had been opened. They required £6,000 more from donations and subscriptions in order to make both ends meet, and they were anxious to get special donations towards a fund for paying off the loan from the Charity Commissioners and also towards a fund of about £50,000 to guarantee their rent of £1,200 a year. They had so far received £1,200 towards the latter fund.—*The Lancet*, March 21st, 1903.

A New Illuminant for the Fundus Oculi.—“The large number of red rays reflected from the fundus of the eye when examining it by the ordinary light tends to mask some of the detail; this is especially the case in disease of the retina and with the fine terminations of the arteries. In microscopy it is well known that the insertion of a Gifford's screen between the light and the section adds greatly to the detail by absorbing the red rays where structures have been stained red. By the kind courtesy of the Westinghouse Electrical Company I have been able to examine a number of fundi, both normal and diseased, by means of the mercury vapor lamp, the light of which is produced by allowing a direct current to flow through a vacuum containing mercury, from a platinum to an iron electrode, the resistance in the tube having been first broken down by a spark of high tension. This

light, when examined spectroscopically, is seen to be deficient in red rays, being very rich in blue and violet. The light, although brilliant, is diffuse and produces an "after image" of very short duration. On looking at the fundus by this light the "background" appears pale green instead of the usual red; the vessels appear purple, standing out with unusual distinctness; the arteries being the same color as the veins, can be traced to their finest ramifications. The choroidal vessels are of a deeper purple and over the whole the retina can be seen glistening, being especially well marked along the arteries and veins. The optic disc appears with a white center and green edges. This illuminant ought to be of considerable utility in the differential diagnosis of retinal and choroidal disease, since the perspective of the retina, choroid, and sclera is very clear. Although the lamp in its present form is hardly suitable for ophthalmoscopic work, alterations could be easily made for this purpose. A somewhat similar effect can be produced by using an arc lamp and screening off the red rays, but the same definition and detail cannot be obtained as with the mercury vapor lamp."—M. S. Mayou in *The Lancet*, March 28th, 1903.

PROGRAM OF THE SECTION ON OPHTHALMOLOGY AMERICAN MEDICAL ASSOCIATION.

Chairman, John E. Weeks, New York; Secretary, Frank C. Todd, Minneapolis.

Address of the Chairman.

Vernal Conjunctivitis, Wm. Campbell Posey, Philadelphia.

Subtropical Trachoma, with Special Reference to a New Therapeutic Agent, Ruffin A. Wright, Mobile, Ala.

The Treatment of Trachoma, Edgar Doak Capps, Fort Worth, Texas.

The Action of Adrenalin in Acute Conjunctival Inflammation, Louis J. Lautenbach, Philadelphia.

Experimental Study on Some Methods of Combating Post-Operative Infection of the Anterior Segment of the Globe, E. C. Ellett, Memphis, Tenn.

Ocular Complications of Bright's Disease, Louis Stricker, Cincinnati.

Subconjunctival Medication with an Especial Reference to the Use of Salt-Sugar Solution in Acute Affections of the Anterior Portions of the Eye, Howard M. Morton, Minneapolis.

Albuminuric Retinitis and the Decapsulation of the Kidney, George F. Suker, Chicago.

SYMPOSIUM ON THE INFLUENCE OF THE CERVICAL SYMPATHETIC ON THE EYE.

(A) Experimental Researches Regarding the Influence of the Cervical Sympathetic on the Eye, George E. de Schweinitz, Philadelphia.

(B) The Influence of Resection of the Superior Ganglion of the Cervical Sympathetic in Glaucoma, Wm. H. Wilder, Chicago.

(C) Influence of Resection of the Cervical Sympathetic in Optic Nerve Atrophy, Hydrophthalmus and Exophthalmic Goiter, James Moores Ball, St. Louis.

(D) Pathology of the Cervical Sympathetic, John E. Weeks, New York.

Arteriosclerosis (Endarteritis) and Its Bearing on Retinal and Choroidal Lesions, Charles Stedman Bull, New York.

Study of the Nerve Head in Relation to Certain Other Fundus Anomalies, Charles H. Beard, Chicago.

Retinal Disease Limited to the Region of the Macula Lutea, Henry Gradle, Chicago.

Address: Congenital Total Color Blindness, Based on a Study of Nine Cases, Prof. Wm. Uhthoff, Breslau, Germany.

Pathologic Exhibit, prepared by a committee consisting of Casey A. Wood, Chicago; Edward A. Shumway, Philadelphia, and H. V. Würdemann, Milwaukee, Wis.

Report of committee:

Methods of Preparing and Preserving Ophthalmic Specimens for the Museum. Address by Chairman, Casey A. Wood.

Some Points in the Pathology of the Eye. Illustrated by the Present Exhibit of Morbid Growths, Edward A. Shumway.

SYMPOSIUM ON THE BACTERIOLOGY OF THE EYE.

Bacteriologic Exhibit, prepared by a committee consisting of R. L. Randolph, Baltimore; Brown Pusey, Chicago; and Edgar Thompson, New York.

(1) The Bacteria Concerned in the Production of Eye Inflammations; address by Chairman, Robert L. Randolph.

(2) Bacteria in the Conjunctiva, Cornea, Iris, Ciliary Body and Choroid, and Changes Caused Thereby. (Illustrated by projection with a lantern of sections and lantern slides.) Brown Pusey, Chicago.

(3) The Essentials and Unessentials of Ophthalmic Asepsis, Harold Gifford, Omaha.

Development of the Fusion Center in the Treatment of Strabismus, Nelson M. Black, Milwaukee, Wis.

A Set of Charts for Stereoscope To Be Used for an Amblyopic Eye or for Treatment of Squint, Albert B. Hale, Chicago.

Cramp of the Ciliary Muscle Due to Eye-strain, J. W. Wright, Columbus, O.

Skiascopy as a Method of Precision, Edward Jackson, Denver.

Some Observations on the Eye Complications of Smallpox During the Recent Epidemic in Cleveland, A. R. Baker, Cleveland, O.

Some Rare Corneal Complications in Ophthalmia Neonatorum, A. A. Hubbell, Buffalo, N. Y.

Skin Grafting on the Eyelids, Oscar Dodd, Chicago.

Entropion and the Operations Employed for Its Relief, John O. McReynolds, Dallas, Texas.

Sympathetic Ophthalmia as the Result of Trauma in the Ciliary Region, John Sabert Mott, Kansas City, Mo.

A Case of Syphilitic Orbital Periostitis and Optic Neuritis, in which Vision Was Nearly Extinguished But Fully Restored, F. C. Hotz, Chicago.

Traumatic Lesions of the Ocular Adnexa; with Report of a Case of Contused Wound of the Eyebrow Resulting in Complete Monocular Blindness Unaccompanied by Ophthalmoscopic Changes, Ellet O. Sisson, Keokuk, Iowa.

Exhibition of Specimens and New Instruments.

Extraction of the Crystalline Lens in High Myopia, H. V. Würdemann and Nelson M. Black, Milwaukee, Wis.

The Management of Myopia, J. H. Claiborne, Jr., New York.

Suggestions on the Pathogenesis of Glaucoma, N. J. Hepburn, New York.

Report of a Case of Complete Absence of Both Eyeballs at Birth, Lawrence R. Ryan, Galesburg, Ill.

Calcareous Degeneration of Corneal Cicatrices, H. Moulton, Fort Smith, Ark.

Ocular Incoördination and Cerebral Reflexes, F. Park Lewis, Buffalo, N. Y.

The Voluntary and Involuntary Brain Centers Controlling the Ocular Muscles, G. C. Savage, Nashville, Tenn.

Remarks on the Horopter, Geo. T. Stevens, New York.

Our present Knowledge of the Cerebral Centers of the Eye, C. Barck, St. Louis.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XII. No. 5.

CHICAGO, MAY, 1903.

NEW SERIES.

ORIGINAL ARTICLES.

CONFESSIONS OF A TRAVELER.

(*Continued*)

BY ALBERT B. HALE,
CHICAGO.

(Illustrated.)

THE HEIDELBERG CONGRESS.

Simplicity is the greatest charm of the Ophthalmological Society which meets annually at Heidelberg. The savor of Richard Hovey's Stein song was continually on my lips, and the refrain "'tis always fair weather when good fellows meet together," could have no more fitting scene. Of course, there is something besides, for in addition to the science of good fellowship there was the good fellowship of science, which is undoubtedly the strongest tie in the world!

This simplicity is due to more causes than one. The lack of politics surely relieves the members of any effort beyond participation in the work of the Society; and the self-limited character of this work, pure ophthalmology, precludes any suspicion that one factor may be given prominence over any other. But the greatest reason of all is the character fostered by the German University career, which has but one aim, the advancement of truth in whatever shape it may be presented.

The informality of the Congress I did not detect, however, until after I had become a member. It was therefore with some trepidation that I made application to the Secretary, Prof. Wagenmann. I feared that I had not brought credentials, I had not joined the county medical society, I could not prove that I had preserved an ethical standard

in my specialty for a term of years, nor did I have anyone to vouch for me. But all this was unnecessary, a simple statement that I was interested in ophthalmology served as a satisfactory passport, and on payment of the small fee of 6 marks I was enrolled among the learned of the world! How quickly it was all done—no committee on membership and no balloting; and how much it all meant; yet I am sure that this very informality serves to preserve intact the dignity and purity of the transactions. Everyone is welcome who can enjoy and benefit by the work done, and no one would ever think of intruding if he were not worthy nor if he thought selfishly to use the Society for his personal gain.

The evening before the official opening there is a delightful gathering of members in the Stadtgarten, a small, semi-private park within the city, where there is, during the summer, a concert every evening. The management courteously reserved quite a large space for our use, and here were gathered together for the first time since the previous year the old members, the new, and the wives or other ladies who might be interested; and everybody shook hands cordially while asking for the health of those who could not come. Soon tables were drawn together, beer was ordered, toasts drunk, and a gentle, refined sort of Commers was begun. Really, this first reunion is the social feature of the society, and much of the preliminary work is cleared away without the need of committees or announcements.

The next morning at nine the business session begins, the meeting for the reading of papers taking place in the Aula of the University. Officially, the conduct of the Congress is of three dimensions, one might say. The morning is given to the literary function, when only formally prepared papers are read and discussed; the early afternoon is spent in the University Eye Klinik and its laboratory, when cases are presented, demonstrations of specimens, instruments or apparatus, or microscopical exhibits made, during which members may move about without ceremony, but exhibitors are allowed five minutes and members two minutes in which to talk. The late afternoon and evening is purely social; for those who are strangers to Heidelberg there are numerous excursions planned, and the ladies take delight in arranging and conducting these trips; in fact, ladies are a large part of the Congress, and the poor, solitary traveler, who, like myself, may be careless enough to leave his wife behind, will regret it and feel that Heidelberg has other sources of pleasure than science. The first evening there was a delightful social gathering and dinner in the Hotel Bellevue terrace; here, again, every one met every one else

and his wife, and at the end there were a few impromptu speeches, a general interchange of national and international ideas, experiences and compliment—and a dash through the town to the *Stadtgarten*, where the social side of the society began all over again.

The next afternoon there was a delightful carriage drive up the Neckar valley, with a simple supper at the end of it; but the *Stadtgarten* was still the attraction, and here again in the evening one met members and the ladies, this time to say good-bye.

I dwell upon the social side of the gathering, because I was surprised to find that so much importance was given to entertaining not only strangers and foreigners, but also such ladies as might be visiting Heidelberg, and I strongly advise everyone who plans to attend the Ophthalmological Society there to prepare for these functions with as much anticipation as for the scientific program itself.

Nevertheless it is the work of the Congress which attracts us, and from nine each morning for three days till about one, the serious side is all absorbing. There is really very little so-called business to receive attention; Professor Leber with a few genial words of welcome declared the meeting in session and then, according to custom, invited to the chair for the morning some distinguished member—usually a foreigner—who controls for the time being the proceedings on the floor. The program is divided into but two parts—papers for the morning, of which there were 38 announced, and demonstration for the afternoon, of which there were 31, so that when the time expires for one day the next number to the one finished is the first to be read the following morning, or to be demonstrated the following afternoon. Each paper is supposed to be finished within twenty minutes and each discussion within eight, but I noticed that the rule was often violated, and it was infrequent that the presiding officer “held the watch” on the speaker. Some of the members committed their papers to memory, some spoke from notes merely and some rather extemporaneously, although it is a well observed rule that every paper must be ready for the printer before the close of the Congress. The discussions were always alive, yet never acrimonious nor personal, but occasionally some statement would meet with a flat denial or disapproval and the essayist would attempt to maintain his position, but the spirit was always friendly.

It is not my intention to examine the program *seriatim* or critically. My own feeling at the present meeting is to give prefer-

ence to the papers of Römer (Würzburg) on the "Serum-therapy of Ulcus Serpens" and of Kruckmann (Leipzig) on "Iridocyclitis Syphilitica"; but others might prefer subjects of different character. As one might expect from German University teachers, there was a predominance of pathology and a goodly proportion of theory, and yet it pleased my humble Americanism very much to discover that after all the German is very human. He is not always in the clouds! More than once the man who "had a case" was on his feet in an instant, to report it, to show how he had made a diagnosis of this and that, had tried one therapeutic measure or another, to conclude that he had made a wonderful success or had been all wrong. I shall never again be afraid of reporting "a case of" after what I heard in Heidelberg, for the world over experience in practice arouses as much interest as experience in the laboratory.

For the foreigner I might say that the afternoon demonstrations at the Eye Klinik are the more instructive and certainly the more entertaining. The papers can all be read at leisure in the printed transactions, but the cases, the new instruments and especially the microscopic and pathologic slides or specimens must be seen on the spot to be fully appreciated. No amount of description or plate making will convey the same idea as will direct observation of the actual case or preparation, and I noticed that the attendance here was fully as large as in the morning, while the enthusiasm for discussion and criticism was even more animated and vigorous. The idea seems to me excellent; not only to separate distinctly papers from demonstrations, but to devote a definite part of the program to such demonstrations, so that it may be taken as a formal part of the gathering, and I feel sure that our section of the A. M. A. would gain by so doing.

There is one question that seems still unsettled and that receives renewed discussion at every annual meeting at Heidelberg. Shall the society maintain its meetings permanently there on the spot where its founder v. Graefe originally planned it, or shall it adopt the method pursued by other similar societies and become migratory, selecting each year a different locality so that members of North Germany or elsewhere may have their turn at being at home? Romance, old association, even convenience prompt the former; impartiality, modern custom and again convenience prompt the latter. It is always discussed, not yet decided, for up to last year the "Ophthalmological Society" has never been an incorporated organization; but for the first time in its history this society has

ILLUSTRATION

MENTIONED IN ARTICLE BY ALBERT B. HALE.



ENTRANCE TO THE UNIVERSITY EYEKLINIK (LEBER'S)
HEIDELBERG.

now come to a point where it must settle this question. It needs, demands a home. Shall that home be permanent only for its library, its specimens, its records, or shall it provide also a home for its meetings, become incorporated and live forever as the Heidelberg Congress? An endowment has been offered the society, which it may soon accept, a committee is now at work to devise a scheme of action, and I have myself little doubt but that this coming meeting will be able to point to a future material home permanent on the banks of the Neckar.

COMMENTS, CONFESSIONS, CRITICISMS.

The question is often asked and probably as often answered, why do we Americans go abroad to study? A reply must be given to two classes, the student, and the practitioner. The student goes to learn either what he has already studied in a general way or what will be to him more or less a specialty in the future. The practitioner goes either to refresh himself in knowledge which has become too obscure during his hurried life of activity, or merely to observe the habits of other men and by comparison to see how they attack the problems he himself has met; he often comes home convinced that in Germany at any rate there is greater opportunity for scientific work and more extended ability to apply in practice a theoretical conclusion, but that his native countrymen may well be proud of what they have accomplished with present conditions.

No one, however, can deny the supremacy of German University Hospitals as teaching centers, and I think there are five good reasons for this, apart from or in addition to, the intellectual cast of the German mind. *First*, and this must always be remembered in contrasting German with American schools, the professor or director of any public hospital is a salaried man; he is selected on account of his ability and is paid to devote so much time to his work, as is the head of a department in any commercial business here; when this work is over, and not before, is his time his own. He is the head, and so strongly does he identify himself with the hospital that instinctively one speaks of it as his. He belongs to the State, however, and is either promoted, retired or discharged, as his merit warrants.

Second, is the system of assistantships or what we would call the staff, which is fostered under him. The professor or director is supreme, but following close in his track are men of perhaps scarcely less fame, others who are developing, and others still who are be-

ginning, but all are paid, each is directly responsible to the one above him, and each must work for that hospital if he wishes to advance.

Third, the age of the hospital; not necessarily of the building itself, but of the refuge for the sick as a social institution. Many buildings are indeed hundreds of years old, as the Hebammeschule in Strassburg, but the origin of nearly all as institutions goes back to a more or less remote past. The people have always known of the hospital; it has always been in sight, always accessible even when looked at with fear or even horror—an attitude which, thanks to modern science, the present generation has lost. The people whether from town or country, have always known where to go when ill or injured.

Fourth, the military discipline under which Germany is trained. An individual when sick, if he is told to go to the hospital, will go there; if once within the hospital he is told to prepare for an operation, he submits and asks no questions—orders must be obeyed. He is not the free born American who runs from one dispensary to another, perhaps finally to solace himself with the newspaper nostrum or the salve of the quack who promises to cure without the knife. (It must be confessed, however, that of late years Germany is by no means free from quacks who reap a rich harvest both in surgery and medicine.)

Fifth, the extensive but recent development of mutual aid societies in all departments of social and commercial life. I fancy it will surprise many of my readers to learn that the average German hospital does not encourage the free bed; even the University hospital is on a paying basis, charging so much for a bed in the ward, for the occupant of this bed is frequently a member of a Society (Genossenschaft) to which he pays dues and which so subscribes to the hospital that for a moderate daily sum its members receive attention. In fact many hospitals of the second and third class depend on these societies for support, and many a man doing good scientific work builds up a practice in his hospital by becoming physician or surgeon to a society. I don't deny the fierceness of competition in the large German cities, the pitiful fee the doctor is forced to accept, but I do affirm that the extravagantly free hospital "supported by voluntary contributions," the unrestrained charity of other countries is not accepted by German method, and that many a patient whom we see ordered about the ward, has paid for his accommodation with the understanding that the reduced rate entitles the director to use him as material.

It is for these reasons that the teaching hospital in Germany has today such a constant supply of patients and makes such thorough

use of its facilities. All this applies equally well to the eye hospital except that it is of more recent growth, but for this reason it escapes some of the traditions and has more modern housing than many of the medical hospitals.

English hospitals are of a more familiar pattern. They have a staff, men of equal authority as seniors, of less authority as juniors, and resident internes of limited service, aided by clinical clerks as externes. These are not paid employes but hold office as an emolument, depending upon practice or private fortune for a living.

To see hospital life in full bloom, to study science in its purest application, is the motive that drives the American to Germany. Only by knowing German, however, can he find it. Otherwise he must go to Vienna, but there he will not obtain such symmetry of instruction; he will specialize and putting his specialties together he will obtain a mosaic, but not a polished whole. There is no doubt whatever but that in Vienna the student of limited time will reap the greatest returns, yet he will not find that philosophic thoroughness which is the charm of a smaller German university. And it is this last with the completeness of accessory detail, by which the student learns most. I myself know of no eye hospital in the United States so perfect in its equipment as one or two of those I have mentioned. They may have the instruments (but I doubt it) or the material, or the famous men on the staff, but they do not give the attention to detail which is a routine in Germany. They do not have the responsible staff whose labors belong permanently to the institution. This is what the student gets when he goes to Germany, and his ideals will be made higher and clearer by it. This he will not get in England (London)—he will see there some fine hospitals, many brilliant operators, but he will not have that methodical training in technique which places a man firmly on his own feet. I heard at Moorfields two Americans comparing notes with each other and with an Australian, to their eminent satisfaction with their studies in London, but—neglecting the inconvenience of location and loss of time—they will not carry back with them such knowledge of detail as life in Germany will give.

All this is a comment for the student of ophthalmology going abroad. It applies with equal force for the maturer practitioner in other specialties outside of our own, but I rejoice to say that I was this summer greatly impressed and flattered by the high standing of American ophthalmology, illustrated by the frequent question "how would you in America do this?" and pleased to find that we are by no means

backward in the study of the more intricate problems of etiology, pathology and treatment. Ophthalmology is a well trodden field, and for that reason perhaps does not offer to the speculative German mind that wide area for investigation which acts as such a great stimulus and in which we must still take our cue from their universities; but operative technique, ward treatment, the diagnosis of individual cases, are matters of detail in which we need acknowledge no masters. Even in the affairs of undergraduate teaching we must as yet pursue our own methods as better fitted for American undergraduate students who do not show that uniformity of preliminary education which will make a discussion of a refined problem in optics a fascination to them. I have seen German students crowd the benches listening eagerly to a demonstration of the influence on light of refractive media, but turn away with comparative indifference from a cataract operation. But the American medical student loves the knife and blood and places the clinical above the didactic.

When therefore the more experienced practitioner travels through England or Germany, he has his own ideas, habits, if I may use the term, and I am proud to say he finds them often very good and worth retaining. Let me go further and say that he will find nothing new beyond what is always novel in the personal sense when he sees other men working in the same field. He may pick up a new instrument or operative trick, but he will also conclude that the problems bothering himself are equally bothersome to his European colleagues. Take the "simple operation" in cataract extraction, for example; in most of the hospitals this is at present the operation of choice, but iridectomy is by no means discarded. Some men are conservative, others radical, but it is no more definitely settled there than here, which is the scientifically proper course. Take again extraction of the lens for high myopia. One man removes the clear lens at once and thinks it the safest and shortest method; another performs only the two operations, a thorough dissection followed a week or so later by a careful release of lens matter—each claims good results. Or a third case, the treatment of dacryocystitis. One man will remove it in all cases, another will not hear of it. We here show no greater disagreement.

It is therefore the atmosphere of profound knowledge, of scholarship, that adds most to the enjoyment of travel, and also, perhaps, the luxury of study from a scientific rather than a practical viewpoint. To see used the Thorner ophthalmoscope, the Zeiss corneal microscope in nearly every case, to have a full bacteriologic and pathologic report of every secretion and tissue, to be able to correlate many cases, to find

every accessory means of illustration brought into play, to have an exhaustive literature at one's elbow, all this makes for the profit of travel-study. I trust I am disappointing no one by failing to describe some wonderful operation, some technique of skill surpassing our own, some new drug that works wonders; or to bring back some instrument that has as yet been used by no one this side the water—but we do not need to go to Germany or England in ophthalmology. New devices there are, new instruments and new drugs, but some of them are of American pattern, others but mere experiments awaiting the judgment of time. I could tell of many beautiful things I saw, but I do not believe that putting it in print would help others to solve their difficulties. America cannot yet write a Graefe-Saemisch Handbuch, but she can now-a-days do things to her everlasting credit.

In conclusion I am going to allow myself two criticisms, for though professional courtesy is hospitality itself in the reception of a foreigner, one cannot allow this to obliterate one's judgment of men or science. The traveler notices at once in the large German cities the outspoken, often unkind remarks made by members of one clique against those of another. It destroys our reverence for the whole body to hear one whose name means much to us, called a pretender, a fossil. Scandal and jealousy we have at home, but the golden rule is not so well observed there but that we often sigh for the good humor of our own little jealousies left behind. In England it is otherwise; professional relationships and reputations are better guarded, and one admires the honest, manly rivalry without meanness with which they mention each other's names.

Antisepsis is England's gift to us; asepsis comes from Germany, and yet in both England and Germany, if one looks far enough, one may see shocking violations of both principles or methods. We Americans seem to have grasped with eagerness the time shortening, practical sense of this surgical procedure, and though we sometimes misuse we never violate the application of it, while in well known hospitals abroad I have seen an entire absence of an antiseptic or aseptic regime. The Englishman is apt to mistake cleanliness for asepsis, or drugging for antisepsis; the German often has a theory of asepsis to work out to the dumbfounding of practical surgery, or theorizes about germ destruction by drug to the ignoring of well established experience. Be that as it may, one regrets to find no uniformity, and is continually surprised that there is no general standard of method below which nothing is allowed. Even this, however, helped to strengthen my growing conviction that respect, admiration, love for European science must ever

actuate us, but that after all I was glad and happy to be able to call myself an American.

[NOTE.—Any criticism of the ideas or opinions in this article I will gladly accept, but criticism of the statements of fact I can only refer to the sources from which I received them, as I was careful to ask for these statements of fact from those in authority who ought to know.—A. B. H.]

PARALYSIS OF EXTERNAL RECTI MUSCLES APPEARING AFTER A BLOW ON THE SKULL.

BY EDWARD LAUDER, M. D., C. M.,

CLEVELAND.

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Case I. E. F., aged 25, American, presented himself at the ophthalmic out-patient department of the Cleveland General Hospital 27th February, 1899. He complained of seeing double and gave a history as follows: On 11th February, or sixteen days before date of coming to hospital, he had attempted to stop a fight between two men and received from one of them a blow on the head in the region of the left occipito-parietal suture. He was unconscious for a few minutes but was able later to walk to his home. There was no swelling caused by the blow, but the pain was so severe as to confine him to his bed for several days. As the pain began to diminish it seemed to pass along the left side of the head; it ceased the eighth day after the injury and the patient then noticed that he saw double.

Examination showed that he had a paralysis of the left external rectus muscle and that the left eye turned in to the extent of 45° . The patient was able, with an effort, to turn the left eye into almost the primary position, the right eye being covered, but the movement was very slow. Examination of the fundi with the ophthalmoscope showed the right fundus to be perfectly normal, while in the left the outline of the optic disc was somewhat hazy. This patient was under my observation for several months. The case terminated in complete recovery.

Case II. A. S., aged 42, German, was brought into the Cleveland General Hospital on 24th February, 1901. He was what is com-

monly known as a "weary Willie" and had been taking a free ride on the bumpers of a freight car in a train which was wrecked. He was severely injured and when admitted showed all the symptoms of fracture of the base of the skull resulting from a blow on the vertex. Five days after he was admitted I saw him for the first time. Both eyes were converged, as had been noticed by the house surgeon when admitted, and he complained of diplopia and vertigo. He was unable to bring either eye into the primary position, the other being covered, although he yet had some power in the external recti. Pupils were small and reacted to light stimulus. Ophthalmoscopic examination showed normal fundi. The patient remained in the hospital two months. At the end of that time the convergence and diplopia were still present. He refused operative interference. To prevent diplopia and vertigo he wore a patch over one eye and in that condition left the hospital.

Case III. J. M., aged 45, Austrian. Admitted to Cleveland City Hospital 25th January, 1902. It was very difficult to get any history of this case because of his inability to articulate distinctly. Several weeks before admittance to the hospital he received a blow on the top of the head from an ore or coal bucket. He was unconscious for several hours, and confined to bed for over two weeks. When I saw him at the hospital his right eye was strongly converged, and the external rectus was apparently without any power. The convergence had been present since the day of injury. The pupil reacted to light. He complained of diplopia and wore a shade over the eye. A satisfactory ophthalmoscopic examination could not be made. In this case the seventh and eighth nerves of the right side were also involved, as was evidenced by inability to completely close the lids of the right eye, pucker the lips, or articulate distinctly, and by deafness in the right ear, as shown by the tuning fork. He remained in the hospital for two months. Operative interference was denied. Neither the ocular, lingual nor auditory condition showed marked improvement up to the time of his discharge.

Paralyses, such as reported, following a blow on the skull, are not so rare as might be supposed. The external rectus muscle, supplied by the sixth nerve, is the one most commonly affected—sometimes unilateral, as in Cases I. and III., but not infrequently bilateral, as in Case II. Other cranial nerves are liable to involvement, those most frequently involved being the optic, fifth, seventh and eighth nerves. In Case I. the optic nerve was involved, though only moderately. In Case III. the seventh and eighth nerves were involved.

A study of the anatomy of the cerebral surface of the base of the skull and the relation of the cranial nerves, shows their proximity to the apex of the petrous portion of the temporal bone, through which fractures of the base usually extend, and their consequent liability to involvement. Tracing the fifth nerve we find, "The two roots of the nerve pass forward through an oval opening in the dura mater, on the superior border of the petrous portion of the temporal bone, above the internal auditory meatus: they then run between the bone and the dura mater to the apex of the petrous portion of the temporal bone." The sixth nerve "pierces the dura mater on the basilar surface of the sphenoid bone, runs through a notch immediately below the posterior clinoid process, and enters the cavernous sinus." The seventh nerve "passes forwards and outwards upon the middle peduncle of the cerebellum, and enters the internal auditory meatus." The last two nerves lie farther from the tip of the petrous portion than do the others, and yet they come within one cm. of the tip.

The third and fourth nerves have been reported as involved, but much less frequently than the optic, seventh or eighth, although their relation shows proximity to the tip. This infrequency, as compared to the other nerves, is accounted for by the fact that experiments have demonstrated that a fracture at the tip of the petrous portion frequently has fissures running into the optic canal, the body of the sphenoid bone, and the tympanic cavity, thus the more frequently involving the optic, the seventh and eighth nerves.

Paralysis of the sixth nerve due to fracture of the base may exist without coma, or the usual symptoms of basal fracture being present. Such a paralysis is either primary, as in Cases II. and III., or secondary, as in Case I., that is, it occurs either immediately after the injury or some days or weeks later. Primary paralysis is due to direct injury of the nerve by the fractured bone; while secondary paralysis is due to compression of the nerve by hemorrhage, inflammatory exudate, or the formation of callus. In primary paralysis the prognosis is unfavorable, only about 24 per cent recovering. In secondary paralysis, however, when absorption of the hemorrhage, exudate or callus occurs, the muscle usually regains its usefulness. The period of disability varies with the character of the substance causing pressure—an exudate or blood clot disappearing much more readily than a callus, the disappearance of the latter, as a rule, occupying many months.

275 Prospect Street.

A SIMPLE TEST FOR STEREOSCOPIC VISION.

BY FREDERICK HERMAN VERHOEF, A. M., M. D.

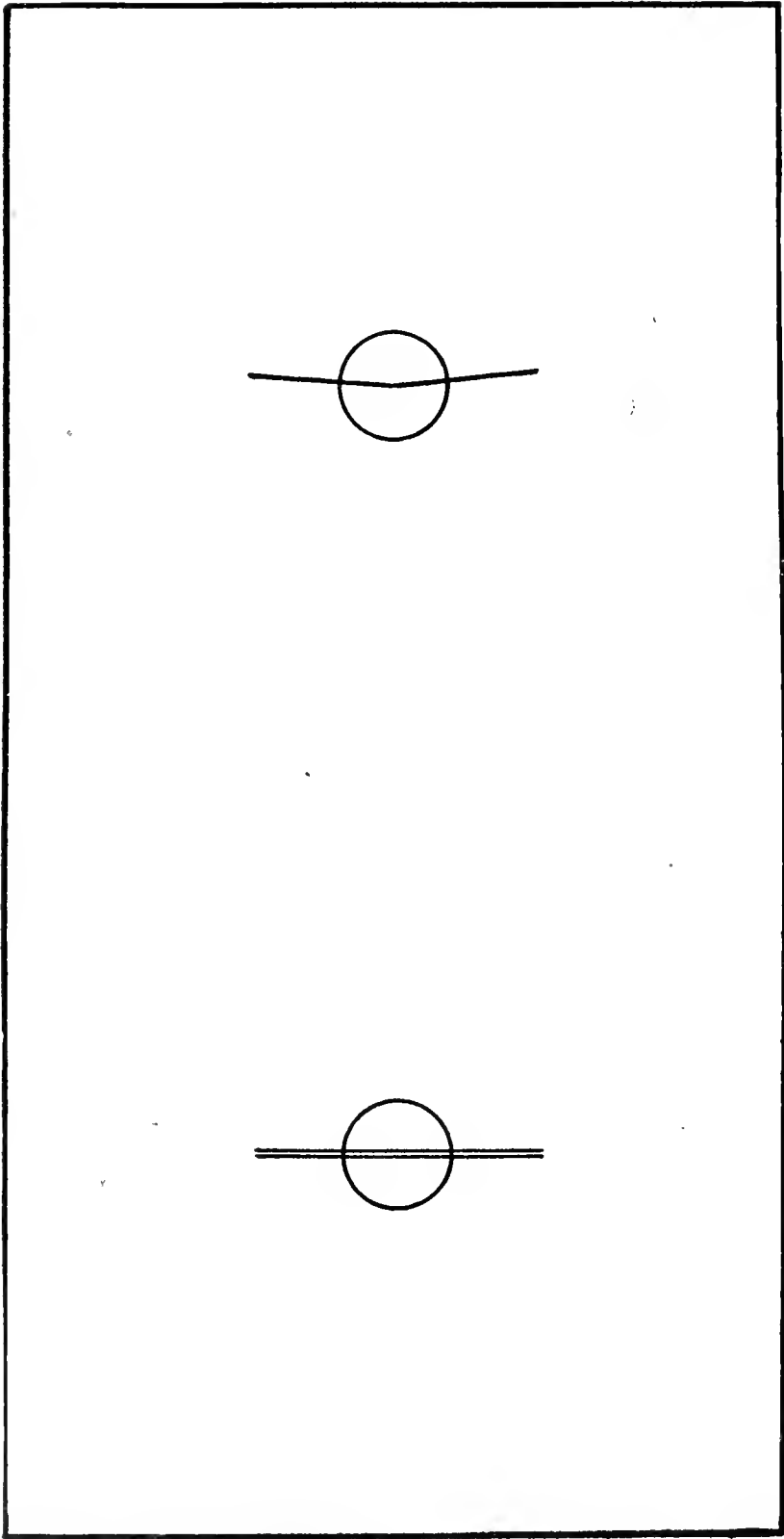
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(Illustrated.)

While the tests usually employed for demonstrating the existence of stereoscopic vision are probably satisfactory in the majority of cases, nevertheless they leave room for doubt in just those few cases in which it is most important that our evidence should be indisputable. Probably the most satisfactory of them for practical purposes is the prism test, by means of which binocular fixation is determined. However, when negative, this test can not be relied upon, since the tendency to overcome prisms is sometimes very slight even when binocular vision is present. And when positive, this test does not absolutely prove the existence of stereoscopic vision since it can not be considered certain that binocular fixation may not sometimes occur in the absence of stereoscopic vision. The bar-reading test, as well as the test in the stereoscope with haploscopic figures, are also not always reliable. When positive they indicate simultaneous vision with the two eyes, but not necessarily true binocular vision. This is also the case with the familiar "bird in the cage" experiment and with the test with colored letters. Hering's test with falling balls requires so many precautions in its use that it can not be regarded as entirely satisfactory. It seems possible, too, that a patient who is unable to face slightly disparate images stereoscopically, might nevertheless learn by experience roughly to estimate depth by widely disparate images and thus be able to pass Hering's test. Such a patient would judge distance according to the empiristic theory of Helmholtz.

The ordinary stereoscopic diagrams which are constructed so as to produce a striking plastic figure, such as a cone, would serve perfectly as tests were it not for the fact that even in monocular vision they may give rise to an idea of plasticity. This is, of course, not so marked as in binocular vision, but it is sufficient to render such tests practically worthless.

The following test is not open to any of these objections and possesses the great advantage of simplicity. The test is made by combining in a stereoscope the two figures shown in the accompanying illustration. If stereoscopic vision is present the combined figure will consist of one circle through which two parallel lines run, each of which is bent at the center of the circle so as to form an angle



A SIMPLE TEST FOR STEREOSCOPIC VISION.

whose vertex points towards and to the left of the patient. If stereoscopic vision is absent, the seeing eye is detected when the patient states that he sees one or the other of the figures.

This test is superior to the tests with haploscopic figures because it is dependent upon true psychical fusion, while the latter are dependent upon the mere matching together of divided figures. It is superior to the tests with stereoscopic diagrams because neither of the single figures can be mistaken for the combined figure. The fusion of the parallel lines with the single bent line is readily explained by the theory of stereoscopic vision recently advanced by the writer.* According to this theory there is produced in a special center for binocular vision, two images, one of which is intermediate between the bent line and one of the parallel lines, and the other intermediate between the bent line and the other parallel line.

Before making the test, the left eye should be screened and the right hand figure viewed through the stereoscope, so as to make sure that an appearance somewhat similar to that of the combined figure is not produced by monocular diplopia. If there is any possibility of the latter leading to error, a modification of the test may be used. For this purpose the bent single line is replaced by a light gray one and a single bright red line is substituted for the two parallel lines. It is best for the red and the gray line to have the same width. On uniting the two figures in a stereoscope the combined figure consists of a circle and a red line which is *bent in the middle*.

The simple Brewster stereoscope will be found suitable for either test if certain precautions are taken. In order to avoid the discoloration of the lines due to chromatic aberration, the test should not be made in too strong a light. Vertical displacement of the figures must be avoided and care should be taken that the card upon which they are drawn is approximately perpendicular to the visual plane. If the distance between the figures is not correct, they may be cut apart and adjusted for the particular stereoscope in which they are to be used. Errors of refraction should, of course, be corrected. This is especially important in cases of anisometropia.

VIENNA, MARCH 26TH, 1903.

*Annals of Ophthalmology, April, 1902.

CONDITIONS AND DISEASES OF THE EYE WHICH MAKE AN ENUCLEATION NECESSARY.*

BY A. J. ERWIN, M. D.,
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Enucleation of the eye, although a simple operation, requires a thorough knowledge of the various conditions and diseases of the eye, which make enucleation necessary. In order to know when and how to operate, to know whether in a given case one should operate or not, and whether the operation when necessary should be a simple enucleation, a simple evisceration, or a Lang, or a Mules, requires that thoroughness of acquaintance with the whole subject, which comes only of large experience, and wide observation. There are many different diseases which may require the removal of an eye, irido choroiditis, pan ophthalmitis, macropthalmus, intraocular tumors, some orbital tumors, traumatic irido cyclitis, extensive traumas, phthisis bulbi, and some cases of glaucoma. And yet in each of these cases the warrant for enucleation depends, not on the disease *per se*, but upon the conditions present.

Time will not allow me to point out the particular cases that require certain operations; you will have to be satisfied with a few rules for your general guidance, which are nearly invariable.

First. A blind eye, which menaces a sound eye, should be removed without delay.

Second. A nearly blind eye which has set up sympathetic disease of the other eye should not be removed.

Herein lies a fine distinction, which every operator must keep in mind.

Third. Remove every lacerated eye with a ragged wound in the ciliary region, before it has time to establish sympathetic disease of the sound eye.

Fourth. Remove every eye which contains a growing tumor, before it involves the orbital tissues.

Fifth. Eviscerate early in pan ophthalmitis.

We will briefly review these rules. The removal of an eye greatly disfigures the face, and is attended with some danger to life withall. Hence, should not lightly be undertaken, one must be quite certain of the necessity for the operation, it is not every blind eye you observe, but every blind eye that threatens the sound eye, or the health of the patient, which should be removed.

The second rule, viz.: A diseased eye with some sight, which has already set up sympathetic disease of the other eye, should not be

*Read before the North Central Ohio District Medical Society.

removed, because its removal will not save the other eye from almost certain blindness, and we may be able to save what sight it has. The only exception to this rule is—in case of malignant disease—where it becomes necessary to operate to save life.

The third rule especially requires mature judgment, for it is not every ciliary laceration which warrants enucleation. A clean rent that has healed promptly without contraction, is fairly safe so long as it remains free from irritation, and if later it should become irritable, the eye can be promptly removed. But a ragged laceration calls for the enucleation before it has had time to cause disease of the other eye.

The fourth and fifth rules are practically invariable. And almost everything else that may require enucleation is a law unto itself.

When the removal of an eye becomes necessary, the question arises, What shall the operation be? Shall we make a simple enucleation, or an enucleation with the ball in the Capsule of Tenon, Lang's, or a simple evisceration, or an evisceration with the ball in the scleral sac, Mules operation. Here again a careful study of the conditions present is necessary in each case. For instance, with impending sympathetic disease of the other eye, simple enucleation, where applicable, would be the judicious operation, as it is attended by the least reaction, and makes the earliest recovery. Again in panophthalmitis, the simple evisceration would be best, being least dangerous to the life of the patient, and easiest of performance. Enucleation and not evisceration should be made in all cases of interocular tumors, as they usually involve the sclera. And evisceration should always have the preference where there are adhesions of the sclera and capsule, unless there be countervailing conditions. I repeat where there seems to be immediate danger of sympathetic ophthalmia, the simple enucleation or evisceration should be made, but the demand for the best cosmetic effect now requires in all other cases, the Lang or Mules operation where possible.

During last spring, I saw these operations performed many times in the Royal London Ophthalmic Clinics, without one failure. Dr. Collins of the staff, informed me that he had made the Mules operation about a hundred times with very satisfactory results, and without one case of sympathetic ophthalmia following from the operation. Dr. Lang of the staff, gave me a similar report of his operation and claims that it is a better operation than the Mules, that there is less reaction, less danger of expulsion of the ball, and that it has all the advantages of the Mules operation.

I, myself, believe that the operations are equally satisfactory and that there are special indications for the one or the other; where there are adhesions, it should always be a Mules; where there is an irritable sclera but no adhesion, we should make a Lang.

The technique of Mules' operation is in brief, viz.: Take a firm hold with the fixation forceps, near the inner corneal margin, enter a Graefe knife behind your forceps, and follow the corneal margin to the other side, then make the other half of the circuit of the cornea with the curved scissors from the same starting point; you take hold of the edge of the sclera and introduce your spud between the choroid and sclera and lift out the whole choroid and vitreous together. Having completely emptied the scleral sac with the least possible friction, if entirely aseptic, a glass or gold ball about two-thirds the diameter of the eye is inserted. If at all septic, the inside of the sac is first rubbed with a fifty per cent carbolic acid solution on cotton wool. The sclera is then brought together with the purse string suture cut short, then the conjunctiva is closed with the purse string suture. A light compress and bandage complete the toilet. In forty-eight hours the conjunctival suture is removed, the scleral suture remaining permanently.

Mr. Collins believes that many cases of failures of the Mules' operation are due to allowing the superficial suture to remain too long, and insists that it should be removed at farthest in forty-eight hours. He and Mr. Lang both use the silk for suture.

Lang's operation is simply the ordinary enucleation with the glass or gold ball placed in the Capsule of Tenon, care being taken to cut the capsule as close to the corneal margin, as smooth as possible. The ball is immediately put in and the capsule closed by the purse string suture, cut short. Then the conjunctiva is likewise closed and the toilet completed with light compress and bandage. Forty-eight hours later, the eye is opened and the conjunctival suture taken out.

Both of the operations are followed by more congestion of the conjunctival and connective tissues than in simple enucleation, but rarely enough to interfere with kindly healing.

The stump secured by these operations fills out the orbit so well, that with a properly fitted art eye it is quite difficult to notice a difference in the eyes. The improvement over the simple enucleation is so great and so comforting to the unfortunate patient, that it seems now to be incumbent to make a Lang or a Mules in every case where the conditions will allow.

REVIEW.

Ophthalmoscopic Diagnosis of Hemorrhages in the Sheath of the Optic Nerve.—By J. Gonin (*Annals d' Oculistique*, February, 1903.) Many authors, especially the French, take great care in differentiating between cases of sudden blindness due to embolus and thrombosis and those due to an effusion of blood into the intervaginal space, since these conditions are easily mistaken it might be well to enumerate and compare the different ophthalmoscopic findings, and endeavor to determine upon what basis rest the decisive proofs of this differential diagnosis. Magnus in 1874 explained how the symptoms of a hemorrhage into the optic nerve might be mistaken for those due to embolism of the central artery and believed to have found the following differential signs in the two conditions. 1. Hemorrhage of the nerve is followed in some hours by a cloudiness of the retina around the macula and nerve and when due to an embolus it comes on later. 2. Hemorrhage is accompanied by a narrowing more or less marked contrasting with the fullness of the veins, while the diagnosis of embolus implies an emptiness of the arteries and narrowing of the veins. 3. The visual field is affected from the center to the periphery as the result of hemorrhage into the nerve while, on the contrary, it is the periphery which ought to be first affected in embolus. Magnus, in his memoir, has in view those hemorrhages which might occur in the trunk of the optic nerve, while the more recent make allusion to effusions into the sheath, and it is to this circumstance probably that the deduction as to the visual field has not been especially considered by any other author. The appearance of the retinal vessels, on the other hand, has been accepted both by Panas and Rollet as a truly valuable differential sign between an apoplexy of the nerve and embolus. Sureau, in a case of ischemia of the retina in which the arteries were narrow but not entirely effaced, did not hesitate to make a diagnosis of effusion into the sheath rather than embolism of the artery. de Wecker agrees with Magnus where he states in "La Traité complet" that, in true cases of emboli the retinal cloudiness appears in from twenty to forty hours after the suppression of the vision, but, that in apoplexy of the sheath they are synchronous. Koenig likewise makes a similar statement. Even, before the appearance of the memoir of Magnus, de Wecker called attention to a symptom of great value in apoplexies of the optic nerve; the presence of flame-like hemorrhages near the edge of the disc or of small hemorrhages surrounding the macula. This condition may also

be present as a result of hemorrhage into the sheath, indeed he even believes that large vitreous hemorrhages may originally have been intervaginal, and suggests the possibility of in this manner of accounting for the condition generally known as retinitis proliferans. It may be considered that there are four generally accepted conditions noticed in the retina as indicative of hemorrhage into the nerve or its sheath: (a) Ischaemia of the retina with more or less complete effacement of the vessels and a milky white opacity at the posterior pole of the eye resembling that commonly attributed to embolism. (b) In addition to an ischaemia of the retina, more or less pronounced, the presence of hemorrhagic extravasations near the edge of the disk or in the macula region. (c) A very abundant sanguinolent effusion which, departing from the border of the disk, penetrates into the vitreous body so as to give the appearance of a profuse intraocular hemorrhage and in its result a retinitis proliferans. (d) An optic neuritis or choked disk as in a case of dropsy of the sheath.

Let us examine first of all what the facts are upon which authors infer that a retro-bulbar hemorrhage can present symptoms of an embolus of the central artery or hemorrhagic retinitis.

1. Cases of ischaemia of the retina. Magnus cites in his memoir as examples of apoplexies of the nerve three observations of ischaemia of the retina which have not been followed by autopsies, but in which the narrowing of the vessels seemed to him to be insufficient to permit the diagnosis of embolus. Aside from this state of relative fulness of the vessels the only reasons that he invokes in favor of hemorrhage into the nerve are theoretical in character and rest upon experimentation. In the second observation of Magnus the retinal opacity was localized at the macula and there existed a corresponding central scotoma. The case was therefore analogous to those that have been described since then as resulting from isolated obstruction of an artery destined to the macula. In one case of ischaemia of the retina, which is the counterpart of this observation of Magnus, but which Pagenstecker gives as an example of apoplexy of the nerve, the visual field was reduced to a narrow slit near the center of fixation and the milk-white opacity of the fundus had occupied all but a small triangular territory between the macula and disk. Many practitioners will see here the effect of an embolus or a thrombus which has affected retinal vessels with the exception of the branch destined to the macula. Pagenstecker deduces a hemorrhage in the sheath of the optic nerve from ophthalmoscopic data alone, discusses at length the location of the effusion but does not give precise reasons for the existence of an

effusion, other than that the arteries are narrowed and the veins are dilated and tortuous. II. Pagenstecker in 1884 describes lesions of the fundus consecutive to hemorrhage as result of a violent blow. In a few minutes the posterior pole assumed an appearance of pearly whiteness and the retinal vessels became narrowed. After some hours and a compressive bandage the color became normal around the disk but the retina remained cloudy at the nasal periphery, followed in a few hours by a detachment of the retina. These fundus modifications were believed to be due to retrobulbar hemorrhage although they might be explained, equally well, by the direct effect of the contusion. Wecker and Masselon give a sketch of an ischaemia of the retina which they say resulted from an intervaginal effusion, nevertheless they make no mention of an anatomical examination to confirm their diagnosis, although their description might be supposed with equal right to apply to an embolus or thrombus.

2. Cases of intraocular hemorrhage. As examples of hemorrhagic effusion of the optic nerve de Wecker described, in 1868, three cases in which hemorrhages were visible at the disk without anything to show that they had taken origin in the nerve or sheath. Under title, "*Hemorrhage of Optic Nerve.*" Weiss has reported a less positive case, as he has for a principal symptom altered veins and arteries of the retina; the veins unusually narrow near the disk only dilate at some distance away, while some of the arteries were transformed into white cords. In regard to a case described by de Wecker and Masselon in which apoplexies, situated near the disk, are supposed to proceed from the sheath and to throw light upon the origin of ischaemia retinae, there do not seem to be facts which would warrant such a supposition, as the retinal vessels can readily explain the presence of the retinal hemorrhages, without looking for an extraretinal origin, unless backed up by anatomical proof. Thus far such proof is utterly lacking. On the other hand the author has studied in detail under the microscope, alterations, the ophthalmoscopic appearance of which were in agreement in all respects with a description given by de Wecker of an ischaemia from apoplexy of the sheath: milk-white macula region, and around the disk, pronounced narrowing but not complete emptiness of the arteries, relative enlargement of the veins, gross hemorrhage touching the disk and extending into the retina, flame-like hemorrhagic spots upon the disk and finally fine extravasations of blood in the region of the macula. Serial sections demonstrate beyond peradventure their retinal origin. The conditions would seem to have favored an apoplexy of the sheath, as there existed an abscess of the orbit with con-

siderable tension, and everything led to the belief that the patient died of thrombosis of the cavernous sinus. The real cause of the ischaemia was really an embolus of the central artery. The fact is that out of twenty-four cases of sudden blindness with ischaemia, in which an anatomical examination has been made, there has not been a single one which has as a cause hemorrhagic effusion into the nerve or its sheath. In twenty times it has been possible to demonstrate obstruction of the central artery by embolus, thrombosis or endarteritis, and in four times it was not possible to show the cause. It may well be said that the doctrine of ischaemia of the retina as due to apoplexy of the nerve is open to grave doubts, that it has no anatomical confirmation and rests upon a theoretical basis. It might be well to ask whether these suppositions are probable and whether, in default of direct proof, they are justified by theoretical consideration in agreement with actual knowledge in the domain of ocular pathology. 1. Can hemorrhage into the nerve or its sheath be a cause of sudden and total blindness to the same degree as obstruction of the central artery? Magnus attributed this loss of function to the tear or compression of the fibres by the effusion of blood and he attempted experimentally to reproduce these lesions by injecting blood into the nerve of rabbits but could not even by abundant injections into the trunk of the nerve provoke any modification in the retinal vessels or seriously injure the nerve tissue elements, and, suggested as an explanation, that an injection from a syringe was less energetic than a spontaneous hemorrhage. It is not at all probable that a hemorrhage from the central vessel could suddenly abolish the function of the nerve and tear the bundles of fibres composing it, being protected, as they are, by resisting partitions of connective tissue which likewise ensheath the vessels themselves. When one considers how long a time an optic nerve can sustain the effects of a venous stasis resulting from a meningitis or cerebral tumor it is difficult to imagine how an effusion into the intervaginal space can produce an instantaneous amaurosis. A considerable effusion of blood into the sheath should act more energetically than a hemorrhage into the tissue of the nerve but whence would come so great a hemorrhage? Certainly not from the vessels of the sheath, which are small, and if from the cranial cavity, it becomes no longer a question of sheath hemorrhage. Even admitting a great hemorrhage from an undetermined source into the space, it is difficult to imagine one of such intensity as to immediately obliterate all function to the degree obtained by Magnus by ligation of the optic nerve trunk. The complete abolition of vision in a few

seconds sometimes, so often noticed in cases attributed to embolus seems against the hypothesis of vaginal apoplexy.

2. Is an Apoplexy of the nerve of such a kind as to cause a retinal opacity more rapidly than that which results from embolus? Magnus believed the immediate cause of the milk-white opacity in the retina to be due to a lesion in the continuity of the nerve fibres, because he had seen it appear in a few hours after experimental section or ligature of the nerve trunk. It has been more recently shown that opacification of the retina is not present after ligature unless the central vessels are involved; therefore an apoplexy of the nerve would only be followed by a cloudy retina in case it was sufficient to efface the lumen of the central artery and interrupt the flow of blood in the vessel; its action upon the retina is brought about by the intermediary of an ischaemia, that is to say, in the same manner as by embolus or thrombus of the artery, but there is no reason for supposing that this action would be more rapid in its effects whether due to external compression or by a plug. As the deductions of Magnus rest upon false premises derived from animal experimentation they are of little value.

3. Does the hypothesis of an apoplexy of the optic nerve explain plausibly the phenomena of transient obscuration of vision which precedes the blindness and of the reëstablishment of vision which follows complete blindness in most of the cases attributed to emboli? Can it also be in accord with the fact, sufficiently often observed, of a rapid return of the retinal circulation to a normal state? Magnus not having succeeded in producing a pronounced modification of the retinal vessels even by injecting into the nerve a large mass of blood still claims that a slight hemorrhage can result in a passing obscuration. Either this hemorrhage comes from the central vessels, in which case the circulatory disturbances should have a duration exceeding a few minutes or the slight extravasation takes place in the sheath and, in this case, is insufficient to compress the nerve to the point of producing an ischaemia, even temporary, of the central artery. It is even more difficult to understand how reëstablishment of vision can follow an ischaemia of many hours or even days as the result of an apoplexy of the nerve. This is not possible if the fibres have been torn and if there has been only a compression of the nerve and vessels it implies an effusion with tension much out of the ordinary. Under such conditions it is hardly probable that shrinking of the clot can in a few hours relieve the central vessels because, being at the center, they will be the last to feel the benefit. Admitting that a hemorrhagic effusion, after having caused a complete ischaemia by compressing the vessels,

undergoes a modification which permits a partial reestablishment of the circulation: do the retinal vessels take up their normal appearance? This is hardly probable as the *vis a tergo* of the arterial blood being superior to that of the venous blood, and the wall of the artery being less compressible than that of the vein, it must happen that the permeability of the artery will be established before that of the vein, and the arterial blood entering the eye, even as a very thin stream, will necessarily set up a congestion of the retinal veins. The gradual return of the retinal circulation to the normal after the stage of ischaemia, presupposing an apoplexy of the sheath, is as little satisfying as an explanation based upon shrinking of the clot, dissolution of a thrombus, etc.

4. Is it probable that hemorrhage into the sheath has for a frequent symptom peripapillary hemorrhage? Leber has injected fluid into the sheath under pressure and has always found it stopped by the lamina cribrosa. Hemorrhage sufficient in degree to strongly distend the walls of the sheath has never been known to pass beyond the lamina cribrosa. Axenfeld has seen, in a metastatic pneumonia, the vaginal spaces occupied by the pneumococcus in great numbers without ever having been able to detect direct propagation from the sheath to the interior of the eye. Although such a path of communication may seem to have been proven clinically, anatomically it would still remain an enigma.

5. Can the frequency of spontaneous hemorrhages of the optic nerve and sheath bear any relation to the frequency of causes of obstruction of the lumen of the artery? Magnus is convinced that the majority of the cases described as embolism are in reality apoplexies of the nerve, a frequent happening; the facts prove differently. The spontaneous effusion of blood in the sheath of the optic nerve is rare, and it is difficult to discover, in ophthalmic literature, a single authentic case nor has the author been able to find a vaginal hematoma although he has examined many hundreds of eyes enucleated for very diverse affections. Hematoma of the optic sheath is almost always of extraorbital origin, as fracture of the skull, cerebral hemorrhage, and is accompanied by unmistakable symptoms. Latterly obstruction of the central artery has been frequently noticed, proliferating endarteritis being likewise mentioned as a determining cause. Why have recourse to so rare a condition as apoplexy of the nerve, in absence of anatomical proofs, with, on the other hand, embolus, thrombosis and endarteritis as probable factors? Clinical and anatomical data combined are so rare that a study of the train of symptoms set up by an

hematoma of the optic nerve might prove interesting. Priestley-Smith has recognized ophthalmoscopically no change in the appearance of the optic disks. Elschnig's three examinations have been equally negative, and a fourth has only revealed a slight papillary hyperaemia. Talko found the veins hyperaemic with a hemorrhagic effusion in the vitreous which evidently had its origin in the rupture of a retinal vessel. Schnaudigel has seen two optic disks that were reddish and slightly swollen, with veins a little tortuous and small hemorrhages along the vessels, the arteries, however, preserved their normal caliber. Uhthoff reports two cases analogous to the preceding: individuals who, as the result of blows on the head, had lost consciousness. The autopsy showed profuse intercranial hemorrhage with participation of the optic sheaths. This hematoma had only caused during life a hyperaemia of the retinal veins, radiating hemorrhages in the retina and slight swelling of the papilla, but no pronounced retraction of the arterial branches, still less a state of ischaemia comparable to that of obstruction of the central artery. As in the observation of Talko there existed no relation of continuity between the intraocular extravasations and that of the optic sheath. In none of these cases did the ophthalmoscopic findings suggest emboli. The examination of the visual function was difficult on account of the state of stupor of the patients. The only sign of an apoplexy of the sheath consisted in a low degree of papillary stasis with or without hemorrhages along the retinal vessels. Facts and theoretical considerations are wanting to support the teachings of Magnus or de Wecker regarding the ophthalmoscopic appearances in apoplexies of the optic nerve. On the one hand there is not a single case of sudden blindness, presenting a picture of ischaemia of the retina in which the autopsy has shown an effusion in the sheath or substance of the nerve and on the other hand there is not a single one of the verified cases of vaginal apoplexy which has presented ophthalmoscopic appearances of obstruction of the central artery. Besides an effusion into the optic sheaths is extremely rare and supposing even that it is produced and has as a consequence complete abolition of vision, which is far from being proven, it would not explain the phenomena that are commonly ascribed to obstruction of the central artery as for example the suddenness of the amaurosis, the rapid development of the retinal opacity, the transient and premonitory obscurations, the partial reëstablishing of the arterial circulation and the tardy appearances of retinal hemorrhages, still less the localization of these phenomena in a sharply defined sector of the fundus, so often noticed. The hypothesis of apoplexy of the sheath leaves untouched

those problems that a study of retinal endarteritis will go far to elucidate. The author does not think that he is too radical in affirming that this doctrine of retrobulbar hemorrhage, as it has been advanced by Magnus and supported by de Wecker, does not rest upon solid fact, is merely a myth of thirty years' life and today has no rights in ophthalmology. His conclusions are 1. The appearance in an eye that has suddenly become blind, of a milk opacity in the papillomacular region with ischaemia, more or less complete, of the retinal arteries does not admit in any fashion of the diagnosis of effusion in the optic nerve or its sheaths. 2. There does not exist any longer reasons for considering profuse hemorrhages at the border of the disk or in the vitreous body as indicative of an apoplexy of the sheath. 3. A slight degree of papillary stasis is the only ophthalmoscopic finding that the facts warrant in considering a symptom of retrobulbar effusion. 4. The absence of all ophthalmoscopic symptoms do not warrant the exclusion of the possibility of a hemorrhagic effusion, even abundant, in the sheath of the optic nerve. 5. Unless a hematoma of the sheath is complicated with a grave lesion as fracture or cerebral hemorrhage it is still difficult to determine what visual disturbances may be caused by it.

WM. DUDLEY HALL.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XII, No. 5.

CHICAGO, MAY, 1903.

NEW SERIES.

REPORTS OF SOCIETIES.

REPORT OF THE MEETING OF THE CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY HELD
TUESDAY EVENING, MARCH 10, 1903.

BY BROWN PUSEY, SECRETARY.

The president, Dr. Charles H. Beard, in the Chair.

Dr. E. F. Snyder exhibited a *case of anomalous or reversed direction of the retinal vessels on the optic disc*. The young woman came because of poor vision. The retinal vessels of the left eye, in which the condition is most marked, emerge from the optic nerve near its inner border. The superior and inferior temporal veins and arteries, instead of taking the usual direction, extend toward the nasal portion of the retina, and hold that course until they are about a papilla-diameter from its border, then they turn sharply about and are distributed in the usual fashion. R. V. = 20/50 with —3.50 Cyl. Ax. 165°. L. V. = 20/50 — with — 3.00 Cyl. Ax. 15°. This is the tenth case of this kind he has examined in the last three years, so it is not an uncommon condition. Dr. Snyder has always found the vision to be more or less defective where it is present. It is apt to be associated with a marked refractive error, myopic astigmatism being the most common one in his cases. In the great majority of these cases a conus downward from the optic nerve is present. In many the physiological cup is displaced inward or downward. He has been unable to find any mention in the English literature of the condition. In the German literature Fuchs incidentally speaks of it, Salzmann and Elschmig mention it and describe microscopical sections of eyes where it was present.

Dr. Charles H. Beard showed two cases with *coloboma of the optic papilla*. In each case the defect was situated temporarily. One, a girl aged sixteen, in whose eyes, in addition to the anomalous nerve-head, there was congenital absence of chorioid and retina outwards. The latter in the right eye was more than twice the size of the disc,

and in the left not more than one-sixth as large as the disc. There were nystagmus and a medium grade of myopic astigmatism. The other case was that of a young man in whose eyes the temporal clefts existed without any other trace of colobomata. Central vision was, of course, lacking with the girl while, with the young man, contrary to the rule in such cases, with correction of his three diopters of myopia, it was 20/15.

Dr. Beard has for many years been making ophthalmoscopic drawings, and he has been impressed with the number of instances of this nature that he has seen. Their chief features are as follows: The nerve-head is small, it enters the globe obliquely from within outwards, thus causing the disc to appear foreshortened. The great bulk of the optic nerve fibres are pushed to the nasal side, and appear as a pink crescent, the remainder of the oval papilla showing as a white cleft. No branches of the retinal vessels occupy this cleft, though often small posterior ciliary twigs are seen therein. Crescentic coni are usually present. The choroid is poorly developed, and the pigment in the hexagonal cells is sparse and irregularly distributed; "powder-grain" fundus. Such eyes are ametropic, the error oftener being myopic astigmatism or a low grade of myopia—seldom or never true axial myopia with Scarpa's staphyloma. A few are hyperopic. A vast majority are amblyopic. If the blind spot be carefully outlined it is found to be elongated towards the fovea centralis. This drawing out of the blind spot is not caused by the presence of a conus, but may be explained by the fact that the cortical portion of the nerve-head is situated nasally, and that before the upper and lower streams of the temporal nerve fibres can flow together they have passed beyond the outer border of the disc, or, at any rate, there exists there a notch in which the percipient elements of the retina are lacking.

Dr. F. A. Phillips presented a case with an *ulcer of the cornea*. The ulcer was covered by a sebaceous material which did not stain with fluoresceine. He also showed a case of *kerato-irido-cyclitis* with peculiar infiltration of the cornea.

Dr. George F. Suker showed a patient with an *extensive detachment of the retina with a large hemorrhage into the vitreous and the retention of some vision*.

Dr. Young reported a case of *ureitis with membranous (?) exudate in the anterior chamber*. A woman, aged 22 years, married five years, two miscarriages, dysmenorrhoea, was attacked suddenly with pain and a sensation of something in the right eye on the night of

January 25th, (the second day of menstrual period) and this continued steadily until the morning of January 27th. So convinced was she of the presence of a foreign body that the inability to find one was a distinct disappointment to her in more senses than one. There was considerable pericorneal injection, lacrymation and photophobia. The iris was slightly discolored, not dull; and the pupil was free and not different from that of the other eye when exposed to light, although in a shadow it did not expand. In the upper pupillary area there was a small spot of pendant opacity lying upon or just in front of the lens capsule. T. + ? a trifle tender. Vision was but little disturbed. Under scopolamin the pupil dilated to almost 5 m.m. horizontally—vertically about 4 m.m., but the pain was not relieved. Atropine and hot bathing was then ordered locally, and salicylate of sodium in ten grain doses internally for its anodyne effect. She had a good rest that night after taking six doses of the salicylate. On the 28th the condition was not materially different. On the 29th, the opacity on the capsule was larger and was thought to be an inflammatory exudate. The salicylate regularly every hour or two (to the extent of 100 grains per day) in half a glass of water, to which a teaspoonful of whiskey was added, because the dose had become nauseous. She was not seen on the 30th; but on the 31st she felt all right, but she could see nothing out of that eye. The pupil was dilated as before, but the pupillary area was entirely occupied by a dirty white exudate, which laterally, a little at both sides, lapped over the pupillary edge of the iris. On the following day this overlapping extended so that there was an irregular web-like band 3 m.m. wide clear across the anterior chamber from periphery to periphery, with apparent filamentous attachments at both extremities to the iris. No hypopyon and no descemetitis.

The treatment was continued, and two days later it could be seen that the exudate was being absorbed. On the 8th only a small spot remained in the center of the pupil, which was now 7 m.m. in diameter and round. On the 12th the exudate had all disappeared. T. — 1., and the eye was whitening out. On the 18th the conditions were so favorable that she was allowed to go to her home in an adjoining state. T. — 1 ? V. 20/100, vitreous a little hazy. She was to take the salicylate and Warner's Compound Salicylic Elixir alternately—two days of the one and two days of the other, until the eye had become clear.

Commenting on this case, Dr. Young said it was the third of the kind that he had seen in twenty years' practice and that the

clinical picture could not be duplicated in any literature at his command. The other two cases of this character he saw five and six years ago, respectively. One was in a man about thirty years old, of notoriously immoral habits, while the other was in a married woman of forty years, of irreproachable character. Both made good recoveries without salicylate. Morphia was the anodyne; and K. I. the absorbent; but the pain was not thoroughly allayed and the absorption was not so rapid as in the last case. Etiologically, he suspected that each of these cases was an expression of an old gonorrheal infection.

Dr. Hotz reported a case of *iodoform dermatitis after enucleation*. In commenting on this case, Dr. Wescott asked why such an offensive substance as iodoform should be used in dressing such cases.

Dr. Cassius D. Wescott showed an *orbital sarcoma* and exhibited histological sections. The patient was a farmer, aged 48, who presented himself February 2nd, 1903, complaining of a bulging eye, which was almost blind and at times painful. He began to complain of pain in the apex of the orbit in April, 1902. The right eye had been getting more prominent since. On examination, there was great exophthalmos, tending outward, the eye projecting perhaps a centimeter and a half beyond the normal plane. The conjunctiva was quite hyperemic and somewhat edematous, the vessels being very large and tortuous over the inner aspect of the globe. The vision of the right eye was equal to counting fingers at a distance of one foot; that of the left, 6/7, without correction. The ophthalmoscope showed an enormous choked disc in the right eye. The left eye was normal. On February 4th the right eye was enucleated and the orbit was completely eviscerated. Ten days after the operation nodular masses were seen in the apex and floor of the orbit, and there was considerable discharge. The cavity was thoroughly curetted and cauterized with the Paquelin cautery. The patient is still under observation, and, since the curetting, has had x-ray treatments. The discharge has ceased, the orbit is lined with what appears to be normal granulation tissue and there are no nodules presenting at any point. The tumor was found to occupy the muscle cone, pressing the optic nerve against the inner wall of the orbit. The sections, both of the tumor and of the masses curetted ten days after the operation, show a mixed round and spindle-cell sarcoma.

Dr. J. E. Colburn exhibited *specimens of sarcoma of the choroid*.

Dr. Thomas Faith showed a case of *pseudo-glioma* and a case with great *proliferation of pigment cells on the capsule of the lens*.

ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

INDIANAPOLIS, April 9, 10, 11, 1903.

Dr. J. Elliott Colburn, M. D., of Chicago, read a paper on *Clinical Experiences in the Treatment of Phorias and Tropias*, giving a history of eleven cases of the phorias, in most of which tenotomies were performed. He suggests the use of bromide of sodium in ten-grain doses three times a day and if true heterophoria exists the results of the test will become uniform. He discussed the value of the rest prism and the development of the latent or total error and the part played by the construction of the head, the expression and pose. If the prism be not only tolerated but a slight increase accepted, a greater and greater amount may be brought out by slowly adding $\frac{1}{2}$, 1, 2, or more degrees, always keeping a little below the error shown at the last reading. Training the muscles by prism or otherwise does not count for much, owing to asymmetrical formation and direction of the orbits. He considers that in phorias advancement is a better operation than complete tenotomy. He corrects the total lateral error as shown by the rest prisms, by advancement or tenotomy, but uses the graduated tenotomy in low degrees of cyclophoria.

Discussion.—Dr. Ferd. C. Hotz, Chicago, emphasized the necessity of thorough examination of these perplexing cases before attempting operation.

Dr. W. L. Dayton, Lincoln, Neb., believes in phorias, but there is no operation that will answer in all cases.

Dr. Hotz fully acknowledges the existence of heterophoria and is not opposed to operation where needed.

Dr. Colburn (closing discussion) would criticize tenotomy on the inferior rectus muscle. You cannot regulate the effect either by advancement or tenotomy.

Some Points in the Operation for Cicatricial Ectropium. F. C. Hotz, Chicago.—Dr. Hotz said that the results of blephoroplastie operations are often hideous, and the lid is often everted again after a short time. This can be avoided by attention to the following points: 1. The proper division and fixation of skin flaps. 2. The selection of the most suitable material for covering the lids, and 3. The shortening of the overstretched lid border.

The greatest difficulty is the tendency of the shrinking skin flaps to evert the lids again. It is almost inevitable as long as the transplanted flap is attached to the non-resisting lid border on the one

side and the non-yielding skin of the forehead or cheek on the other side, because the lid border is exposed to the full traction force of the shrinking flap. It is easier for the flap to draw the lower lid down than the skin of the cheek up. This can be overcome if, instead of covering the whole wound with one skin flap, we make use of two flaps: a small one to cover the lid surface only and which he calls the lid flap, and a larger one which is to be spread over the remaining wound area, and if we make provision that the contraction of the larger flap can have no effect on the small lid flap. In ectropium of the upper lid this point is gained if the upper edge of the lid flap is firmly attached to the upper border of the tarsus, while its lower edge is united with the free margin. The lid flap is thus anchored above and below to the tarsus and its contraction cannot turn the lid over, because the traction force, to do so, must have a fixed point of purchase outside the lid. The shrinkage of the other flap, with its point of purchase outside the lid, cannot disturb the position of the lid margin, because its pulling force is expended on the upper tarsal border. In ectropium of the lower lid the same principle is adopted, but it must be borne in mind that the tarsus of the lower lid is very small and the lid skin normally reaches down farther than the lower border of the tarsus. The normal boundary line between the lid and cheek must be re-established by the division and fixation of the skin flaps: the lid flap must not be united with the lower border of the tarsus but fastened to the tarso-orbital fascia in a line a little above the infra-orbital margin. A good material for the lids is the cicatricial skin usually found in the immediate vicinity of extensive ectropium. It makes a perfect lid skin. In the upper lid it can sometimes be used when the eyebrows are absent, but if not available, a Tiersch graft is the only suitable material.

The shortening of the elongated border of the lower lid: The reposition of the everted lower lid cannot be perfect and permanent unless the over-stretched lid margin is reduced to its proper length. He regards this as an essential point in cicatricial ectropium.

If the eyebrows are absent and there is a good expanse of cicatricial tissue above the everted lid, cut from this cicatricial skin 5 mm. above the inner canthus obliquely upward and then continue in a curve downward to a point about 5 mm. from the external canthus. This flap is carefully dissected up as far as the lid border. The lid is then released by dissections until it can be easily turned down into normal position, and the edge of the flap is fastened by silk sutures to the upper border of the tarsus. If on account of the eyebrows the

flap cannot be taken from the cicatricial skin, after the reposition of the lid we cut from the arm a Tiersch graft of suitable size, which is transported on the razor directly to the lid. The sutures must be inserted with great care to make sure the edges of the flap do not roll in. After the lid flap is fastened, the lid is drawn down as far as possible and held in this position by two ligatures passed through the free border and fixed on the cheek by plaster strips for the purpose of immobilizing the lid during the healing process and also to enlarge the wound above the lid to its fullest capacity. Over this wound a Tiersch graft is used, spread out so the edges lap over the surrounding skin, no sutures being used. In the lower lid we can always secure the cicatricial skin, but as it shrinks considerably, care must be taken to secure a flap of liberal dimensions. (This essay was profusely illustrated by the author by black-board drawings.)

Discussion.—Dr. Casey Wood, Chicago: The main thing is the selection of the kind of skin. If taken from the arm a Tiersch graft and not a Wolfe graft should be used as hair will assuredly grow upon a graft from this location. He removed a large angioma from a child and it was necessary to consider the ectropium, and the skin removed at that time had involved the whole length of the lower lid, and a Wolfe graft was made use of. It took nicely, but now an inelegant appearance brought about by the growth has to be dealt with. He advises the use of the Tiersch graft. They fulfill all requirements, and we do not get the unfavorable results we find in thicker grafts from other parts of the body.

Dr. Oscar Dodd, Chicago, has never had any trouble in using Tiersch grafts in the upper lid. In the lower lid it is not always possible to get cicatricial tissue of the desirable size for transplantation and Tiersch grafts in these cases are useless. Perhaps by the method of Dr. Hotz in anchoring the difficulty may be obviated. The Wolfe graft if prepared very thin, has the disadvantage that it is never like the skin of the face or lid and will remain at least for years, of a different color and can be distinctly seen. As for pedicle grafts from the temple and cheek, there are cases where it is impossible to get as good results as we wish in the restoration of the lids without them.

Dr. George F. Suker, Chicago, said that if Dr. Hotz did not have exact coaptation, and if the upper flap did not overlap the lower, but would leave a narrow line of granulating surface between the flaps, he would avoid any depression or contraction.

Dr. D. T. Vail, Cincinnati: Operation would not, perhaps, be

applicable in that form of ectropium which involves the inner canthus of both eyes; where the nose has been burned off almost entirely and the inner canthus of each eye has been drawn so badly there is only a small space at the bridge of the nose, Dr. Hotz' operation would not, perhaps, be applicable. This is generally a double affair. In this restoration at the inner canthus you have a crescentic form of exposure and it would seem a piece of skin laid in there would give satisfactory results, but it will not. To have a good result it is necessary to anchor the upper lid to the lower lid at the inner corner in such a way that you have a horse-shoe-like exposure of tissue. The main thing about the whole operation is in following the suggestion made about taking up the slack of the lid, and unless you take that slack up fully a third your operation will be a failure.

Dr. J. Morrison Ray, of Louisville, Ky., has found it a great advantage when transplanting flaps to first bare the edge of the eyelids and sew the two lids together.

Dr. A. E. Bulson, Jr., Ft. Wayne: To prevent the necessity of shaving, it is Dr. Bulson's experience that grafts taken behind the ear, are less apt to have this hair. It is not possible to always get a large portion but it is better than grafts taken from other parts of the body.

Dr. Hotz (closing discussion) emphasizes the careful selection of the proper materials. (Here Dr. Hotz showed photographs of cases operated on by other methods with unsatisfactory results). Cut Tiersch grafts as thin as possible, just the epidermis, just deep enough to get live cells, and not hair follicles. Do not transplant hair follicles and you will not have hairs in the flaps. If in the lower lid cicatricial tissue is not available, he would use Tiersch grafts. He has done the operation a number of times. The upper lid moves nicely up and down and no furrow is present. Dr. Suker seemed to have misunderstood him in what he said in regard to allowing the upper flap to overlap. That is done to prevent the rolling in of the flaps. These Tiersch flaps have a tendency to roll in. If so fastened they will not do it. In changing the bandage the overlapping portion is simply pared off. He forgot to mention that to leave a granulating line along here would have no advantage. If we fasten that flap firmly to the tarsus we know it will unite. If we leave it to granulation we trust to uncertainties.

Dr. Adolph Alt, St. Louis, Mo., read a paper entitled *Episcleritis*. Dr. Alt has seen a number of cases in which during the progress of

the disease elevated spots were formed which looked exactly like phlyctenas, semi-transparent, and as if filled with a muddy, yellowish liquid. Such a nodule may disappear and subsequently more nodules may spring up and this nodule formation sometimes travels gradually around the periphery of the cornea. The disease is very slow in its course and with the continually renewed eruptions may cover many months and years. If the disease has attacked the circumcorneal tissue this whole area becomes stretched and the result is annular staphyloma. This form is always combined with a more or less localized or a general affection of the uveal tract. It is more frequently seen in very young children than in adults. Although rheumatism, gout, tuberculosis and syphilis are mentioned as a cause, Dr. Alt has been unable to convince himself of a general diathesis which might underly this local affection. He believes that the superficial episcleritis is a disease *per se* and distinct from the deeper scleritis. He also agrees with Schlodtmann that it is probably a special myotic disease, the parasite of which may some day be found. Pathological research has not succeeded in throwing much light on the nature and etiology of the disease. Anti-rheumatic and anti-syphilitic remedies, although having a beneficial effect in some cases are unreliable as far as curing the disease is concerned. Subconjunctival injections of solutions of different mercurial salts and pure salt solutions have sometimes a beneficial action, but in some cases seem to aggravate the disease. Pilocarpine, locally, subcutaneously and internally sometimes does well, as do heat and cold, but their efficacy seems to give out after a little while, whether we combine them with mydriasis and rest in a dark room or not. Massage with yellow oxide of mercury, aristol or salicylic acid in the form of ointments is decidedly beneficial to a certain point, and then disappointing. The inspersion of calomel has given excellent results. Mercurials have now and then a good effect in the deep seated scleritis.

Discussion.—Dr. D. S. Reynolds, Louisville, Ky.: As the sclera is not disposed in layers, Dr. Reynolds cannot conceive of a superficial or deep seated scleritis. Along the course of the blood vessels is most likely to be the seat of gummatous deposits. He thinks a large proportion of the cases are inherited syphilis, beginning as a gummatous formation on the uveal surface. He has not seen it in acquired syphilis, but in children the subjects of inherited syphilis innumerable times. He employs mercury in small doses, strict attention to diet and habits of life, with the design of improving the condition of the patient.

Dr. J. O. Stillson, Indianapolis, Ind., thinks that the association of episcleritis with the rheumatism and gout is a coincident rather than a cause, and disagrees with Dr. Reynolds about it being in so many instances a specific disease.

Dr. J. A. Donovan, Butte, Mont., has never been able to connect this disease with syphilis either directly or indirectly. His treatment consists of calomel in increasing doses followed by phosphate of soda.

Dr. George F. Suker, Chicago, is a firm believer in large doses of salicylate well diluted with water. In addition he uses atropine and hot fomentations.

Dr. C. L. Minor, Springfield, O., recently saw two young ladies, aged respectively 18 and 20, with involvement of the sclera. He referred them to the family physician. There was no history of syphilis in either family and no gouty diathesis that could be found. They both had some derangement of the female organs which required operation for correction and soon after the scleritis disappeared and up to the present time has remained cured.

Dr. J. E. Colburn, Chicago, Ill., has noticed that the most severe exacerbations usually came, as in chorioiditis, in the spring, beginning in March and continuing during April and May. One patient invariably had a return of the attack during these months, and at Dr. Colburn's suggestion she went to California about mid-winter four years ago and escaped the recurrence. Since then she has had no return of the conditions. She had the colored spots on the sclera.

Dr. Alt (closing discussion): It has been the custom to call the tissue which lies upon the deep scleral tissue and is connected with the conjunctival tissue the episcleral tissue. And as the inflammation lies in the tissue which unites the two together it is usually called episcleritis. In these cases there is no inflammation to be found in the uveal tract. As regards syphilis being the underlying cause in most cases, in what disease can we not find it in the family? How can you prove it and how can you disprove it?

Paresis and Paralysis of the Muscle of Accommodation.—Dr. George F. Suker, Chicago, presented certain anatomical physiological facts based upon the experiments of Hensen and Voelckers, Hess, St. Bernheimer and others, which go to prove that the function of accommodation may be parietic or paralytic without being associated with iris paralysis or extra-ocular muscular complication. He has outlined Kahler and Pick's as well as Hensen and Voelcker's arrangement of the third nerve nucleus. They go to show that there is a separate center in the third nucleus for the act of accommodation, pupillary

reaction and extra-ocular muscle function. He speaks of the varieties of paralysis or paresis, and that the same may be central, peripheral or orbital. He limits himself, however, mostly to the peripheral varieties. In this connection he dilates upon the paresis and paralysis of accommodation following such causes as glaucoma, injuries to the eye, over-exertion, defective teeth and poisons. Under the heading of infectious diseases, he describes this condition of the accommodation in syphilis, influenza, diphtheria and the like. He also mentions this condition in some general diseases, as malaria, typhoid, dysentery, measles, scarlet fever, multiple neuritis and scorbutus. In the paper Dr. Suker expresses the opinion that the paralyzes and pareses accompanying infectious diseases depend upon the influence that the toxins have upon the peripheral nerve terminals. He speaks of a neuropathic and a myopathic variety of paresis or paralysis of the accommodation. He distinguishes between an active and a passive variety and assigns his reasons therefor. He lays considerable stress upon this condition of the accommodation following diseases which entail great muscular enfeeblement or nerve exhaustion. Under the heading of diphtheritic paralysis he shows that the antitoxin does not mitigate the attack nor does it act as a preventive; on the contrary, he seems to think that since the use of antitoxin accommodative paralyzes are somewhat more frequent than heretofore.

Dr. Suker has pointed out the fact that paralysis or paresis of the muscle of accommodation is only recognizable when it exceeds the amount of latent accommodation characteristic of the age of the patient in whom it occurs. Therefore it is only of value as a diagnostic feature when it occurs in a pre-presbyopic. In order to make the diagnosis of paralysis or paresis, you have to take into consideration the range of the accommodation of that patient. In the aged there may be a complete paralysis, yet not recognizable by any means of examination at our disposal.

Discussion.—Dr. D. S. Reynolds, Louisville, Ky.: Dr. Suker has overlooked the fact that some people have the voluntary power of controlling the pupillary motion and the accommodative function. Rosier of London, whose Treatise on Physiology was published in 1824, was able to dilate his pupil at will and exercise the accommodation.

He did not agree with Dr. Suker that in the paralysis of accommodation in diphtheritic cases the prognosis is always favorable. Of course it may be argued that the diphtheritic poison was not the sole cause of the paralysis, but the fact remains as tending to show that the prognosis is not always favorable.

Dr. Adolph Alt, St. Louis, had never seen such a paralysis that did not get well in the course of a number of weeks. He differed from Dr. Suker in his opinion that none but diphtheritic sore throats cause paralysis of accommodation. He has a number of cases where the bacteriological examination, the symptoms and the history of the case did not prove diphtheria, and where after a few weeks' standing paralysis of the accommodation occurred. He is satisfied that there are some infections of the tonsils and fauces that may cause paralysis of the accommodation that are not purely diphtheritic, or so little so that it was not possible to find the bacteriologic evidence.

He believes that the child who has diphtheritic paralysis should be carefully looked after, for fear of more important pareses supervening.

Dr. Ferd. C. Hotz, Chicago, thinks that Dr. Suker applies the treatment of paresis and paralysis to a number of cases or conditions in which it is not proper. He speaks of paresis of the accommodation following diseases that exhaust the system—typhoid fever and others. It is true that after an exhaustive disease most people cannot use their eyes for close work very long; if they are presbyopes, not at all; but the question is, is it proper to speak of such conditions as paralysis? Paresis means simply a low grade of paralysis. These people are unable to keep their eyes converged very long. Perhaps we should speak of insufficient converging power. Paralysis refers to the nerve—to a reduced or limited supply of nerve force to the muscle. After such diseases the nerve is all right. It is the muscle which cannot act under the same nerve stimulus. The muscles cannot maintain the work required of them with the nerve force applied. These people cannot walk very long. Certainly no one speaks of their legs being paralyzed or paretic. This paper would lead you to speak of paralysis or paresis of accommodation under conditions where no such thing has existed.

Dr. Thomas Faith, Chicago: Dr. Suker makes the statement that the pupil and the accommodation are not associated. This may be true in a limited number of cases, but our modern text books of physiology teach the opposite.

Dr. William E. Gamble, Chicago: The question of drugs producing paresis of accommodation has not been dwelt upon. A man consulted Dr. Gamble with paralysis of accommodation which had existed for several weeks. The case was examined carefully without finding any cause for the trouble. It was discovered he had been taking a drug for some weeks and he was asked to return and bring his

prescription. This showed that he had taken 1/96 of a grain of hydrobromate of hyocin every two hours, which was discontinued and the accommodation improved.

Dr. J. P. Worrel, Terre Haute, Ind., had a patient who had deficient range of accommodation on one side. She was unable to use her eyes for reading and sewing. The manifest hypermetropia was greater upon the side on which the near point was removed, but a careful study under mydriatics showed there was no difference in the refraction when the total hypermetropia was corrected. Her accommodation was restored.

Dr. H. H. Brown, Chicago: Dr. Alt made a very important statement when he takes issue on the necessity of pharyngeal involvement. A case which consulted Dr. Brown with complete paresis of the accommodation, but had been in school constantly until the time of isolation made necessary by the outbreak of diphtheria in the family, at which time an adult member of the family died. The little girl was the picture of health and had no evidence of pharyngeal involvement. The paresis was complete.

Dr. Edward B. Heckle, Pittsburg, has had a few cases of tonsillitis followed by paralysis of accommodation where there was no diphtheritic complication whatever. In seeking for a cause of this trouble it is difficult to arrive at a conclusion. In regard to drugs, he had a patient several months ago with complete paralysis of the accommodation who had been using a liniment on her husband, which contained 2 dr. fluid extract belladonna to the 2 oz. mixture. She had absorbed through her hands sufficient to cause paralysis of the accommodation. It sometimes follows the use of a belladonna plaster. He believes the local paralysis sometimes seen is due to a disturbance of the functions of elimination.

Dr. Alt said he did not say he had never seen paralysis of accommodation with pharyngeal involvement, but that it was sometimes impossible to discover diphtheritic involvement in a sore throat. (Dr. Alt cited a case.)

Dr. Suker (closing discussion): It is not necessary to have diphtheria in the throat in order to have the paresis of accommodation, but the diphtheria might be anywhere. "Paralysis is the suspension or abolition of functional power, especially in the nervous system, in which case there is a temporary or permanent loss of the power of motion or sensation, or both, in the part supplied by the affected nerve. Paresis is an incomplete paralysis, especially when not associated with any demonstrable organic lesion—limited to motion and not to sensa-

tion." There are two varieties, myopathic and neuropathic. The myopathic can follow general muscular enfeeblement which you usually get in such diseases as typhoid, malaria, etc. In any muscle which is exhausted the effete materials accumulate and we have exhaustion, paresis. The nerve force may still be there, but the muscle is incompetent to respond to the nerve impulse. The nucleus of the muscle of accommodation is separate from the iris contraction center in the third nerve nucleus. Any one can by practice suspend the accommodation in one eye and maintain it in the other. Palliative glasses are merely to help out and comfort the patient for the time being. The symptoms of a peripheral or central paralysis or paresis are practically the same. To determine whether it is a central or a peripheral lesion depends mainly upon the fact whether the act of accommodation alone is involved or whether it is associated with mydriasis or an involvement of other muscles supplied by the third nerve. If more than the accommodation is involved, excluding mydriatics, the chances are you have a central lesion, for the simple reason that all these centers are so intimately connected that in a nuclear lesion it would be impossible to have one affected and not the other.

Excision of the Tarsus in Certain Forms of Chronic Trachoma. Dr. Casey A. Wood, Chicago. Dr. Wood does not advise this operation in any of the recent or acute forms of trachoma nor in any case where there is a reasonable prospect of an early cure from other forms of treatment. When other remedies, however, have failed and the patient has but to look forward to months and years of suffering with serious interruption of work, in many cases tarsal excision is certainly indicated. Removal of the tarsus in part or as a whole is indicated in those long standing cases of trachoma not amenable to other forms of treatment, in which the lids show infiltration and granulation deposits in the connective tissue of the retrotarsal folds, whether the cornea be affected or not. If the tarsus be thickened and enlarged, the operation is the more urgently indicated. Also if there be disease of the folds without thickening of the cartilage, and the cornea is affected, the operation should be done. Where after an atrophy or cure of previously existing granulations in the tarsal folds, there remain deep seated foci in the tarsus, whether the cornea has escaped or not, removal of the tarsus will give gratifying results. Its success largely depends upon precision in placing the sutures and other details difficult to carry out if the patient is restless. When the operation is done, as it usually is, on the upper lid, the latter is everted so that the convex border of the tarsus is thoroughly exposed. This

is then grasped with two strong toothed forceps at the junction of the middle and the outer and inner thirds of the tarsal margin and drawn firmly upward by the assistant standing at the patient's head. Following as nearly as possible the margin of the diseased area, an incision is made from the outer to the inner canthus through the conjunctiva only. The wound will gape (unless the conjunctiva is bound down by previous mechanical treatment), and the fibres of Mueller's muscle will be recognized. These stitches should now be passed through the bulbar margin of the incision, care being taken to include only the conjunctiva and a few fibres of the submucosa. If more than a mm. in width of conjunctiva is included in the sutures, small symblepharon folds may form opposite each stitch, and if too deeply inserted there will be a noticeable dragging on the lid edges. Once introduced through the lower wound margin, they should be allowed to hang down over the globe, resting on a sterilized towel placed on the cheek. The bulbar conjunctiva should now be separated from the globe a distance of 3 to 5 mm. from the edge of the wound. The forceps may now be removed from the convex border of the tarsus and the lid margin be grasped at its middle point, a horn spatula being passed behind the everted lid. A second incision, running the whole length of the parallel to the lid edge, is now made as nearly as possible in the healthy conjunctiva. The intention is to remove as little of the uninfected mucous membrane as possible and leave as large a portion of the central conjunctiva as is consistent. The spatula is removed, and the lid drawn upward and backward. The tissues are now seized at the nasal junction of the two incisions and the tarsus orbicularis and Mueller's muscle. At this point the anesthetic may be withdrawn and time allowed for the bleeding to cease. Some branches of the arterial supply may have to be twisted, but not much trouble has been had with hemorrhage. The conjunctival sac should now be thoroughly irrigated and the lips of the wound brought together. Care should be taken to exactly place each suture in both wound margins so that it will exactly oppose its fellow when the eye is closed. The bulbar conjunctiva should not be put too much upon the stretch. The middle suture should first be tied. He would advise that the patient be allowed to sufficiently recover from the anesthetic to discover whether the palpebral movements are sufficient and to be sure there is no irregularity at the lid margins. His assistant, Dr. Frank Brawley, has prepared a modification of the black silk (No. 2 black braided) which Worth advises in his advanced operations. The silk is wound on ordinary glass microscopic

slides for convenience in handling, and sterilized by boiling thirty minutes. It is then dehydrated by emersion in absolute alcohol for ten minutes and dried above a Bunsen burner flame. These slides of silk are then dropped into a jar of liquid paraffin containing 25 per cent of vaselin, where they remain until used. An end of suture is drawn out of jar, and the excess of wax stripped off the required suture lengths, by drawing through sterile gauze held in thumb and finger. These threads are somewhat stiff and yet flexible, are easily threaded, never kink, and slip through the tissues with the minimum amount of friction and do not readily tear out of the tissues in which they are placed. The knots are much less liable to irritate the cornea and bulbar conjunctiva. The after treatment is simple. Gentle irrigation of the sac four or five times daily with warm boric acid solution, followed by the instillation of warmed and sterile vaseline acts nicely. The vaseline softens the sutures and protects the cornea. A light bandage is applied over both eyes and order quiet, but do not insist he shall stay in bed. The sutures are removed the fourth or fifth day. In a week or ten days the sac should be examined for granulation tissue or irregular wound margins, which are best clipped off with the scissors. The most important result of the operation is the relief given to the irritative symptoms of the disease; the photophobia, lachrymation, foreign body sensations, etc., soon subside. Pannus is always lessened and may often disappear, thus improving the sight. Finally, when recurrent ulcer of the cornea is to be dealt, a cure of the abnormal conditions behind it generally prevents a return of the disease. He has never seen a single instance of ptosis following this operation in the twenty-two which he has himself operated on. He should also like to enter a denial as to the probability of entropion. Ulcer of the cornea has not been noticed after this operation. He thinks if directions for placing the sutures, and especially if the specially prepared silk be used, no such complication will arise. The production of irregular, symblepharon-like folds in the region of the sulci is an accident that may happen to the careless operator. For relief of this it is best to dissect back the symblepharal attachments and implant mucous membrane or skin grafts to cover the denuded surface.

(Dr. Wood reported a series of cases operated upon by himself.)

Discussion.—Dr. A. E. Bulson, Jr., Ft. Wayne, Ind., has been trying Vose's operation for entropion, and after several failures, has conceived the idea of removing a portion of the old knuckled cartilage. Under a general anesthetic the conjunctiva was dissected up. A very

small portion of the upper border of the tarsal cartilage was removed. The case went on to recovery and the pannus diminishing and vision improved. Some ptosis resulted, but not sufficient to prevent fairly good vision.

Dr. Adolph Alt, St. Louis, Mo., asked what effect the removal of the tarsus has on the remaining granulating tissue. It leaves a strip along the edge of the lid and there is undoubtedly some trachoma in the tarsal fold, although there was not in the pictures. Is there not further growth of the trachoma?

Dr. J. B. Worrell, Terre Haute, Ind., asked whether in making the incision all the tissue between the two incisions is removed and are the two edges stitched together? (Dr. Wood: Yes, where possible.) What was the effect of this upon the cul de sac? Would it reduce that to such an extent that it would limit the movements of the eyeball? Do you remove the tarsus entirely through all the lamina to the muscular tissue of the lid? (Dr. Wood: Every bit of it).

Dr. Wood said in closing the discussion, shall we go on treating these troubles by the usual method, or try to eradicate the foci of the disease itself? He has never noticed any marked increase of the dry sensation, of which the patient usually complains.

As to the removal of the retrotarsal folds he never noticed, except in one case any marked limitation of the upward or downward movements of the eyeball, after the operation. In fact none of the French or German authors who have done this operation make complaint of the limitation of globar movements.

Blepharitis Marginalis. Dr. Dudley S. Reynolds, Louisville, Ky., describes one of the commonest forms of this trouble, in which there is a slight thickening of the borders of the lids, the anterior margins dry and red and the lashes on close inspection observed to be thin, while the cuticle between the hairs is covered by minute scales of desquamating epidermis. This condition is aggravated by loss of sleep and constipated bowels. It is seen to almost disappear under correction of errors of refraction or intestinal constipation. Close inspection will discover a small, sheath-like elevation of epidermis around each hair in the lash. Dr. Reynolds believes this can be entirely eradicated and recovery secured for many by the periodical application of pure carbolic acid, which he accomplishes by dipping a needle in a preparation of pure carbolic crystals in alcohol, and applying same directly to all the hair follicles on the margin of the lid. About the fifth day the crust of epidermis which has exfoliated as a consequence, should be removed and a little yellow oxide of

mercury ointment applied. This should be repeated about every ten days, and in most cases a heavy growth of hair will result. Dr. Reynolds goes on to describe a more distressing condition, having a glazed, red, rounded appearance of the tarsal margins, with no sign of lashes. After application of phenol at intervals of ten days, a reduction of the thickening is secured and a fair growth of cilia appear. Still another class described by Dr. Reynolds is that in which dilated veins are often seen just under the skin. The retrotarsal conjunctiva is relaxed, there is profuse lachrymation and often photophobia. An accumulation of inspissated sebum mats the cilia together. The ulcer should be cleansed and a small portion of phenol applied to the bottom. The lid may now be covered with a piece of gauze dipped in petrolatum and secured with strips of plaster. Careful attention should be given to constitutional correctives. He says many cases are undoubtedly due to inherited syphilis, and that the syrup of hydriodic acid is a priceless remedy in such cases. Most of the ulcers in this class of cases are broken down gummatous formations. These should be dried and filled with the yellow oxide of mercury powder, or a crystal of the red oxide. He does not claim that the application of phenol is to be indiscriminately made, as many complicated cases require distinct modifications in treatment.

Discussion.—Dr. Vail, of Cincinnati, referring to a case of Blepharitis Marginalis of Dr. Reynolds' which he had seen, said that on examining the young lady, he found that there was some desquamation of the epithelium. He applied 20 per cent argentic nitrate to the lash with good results. He recalled seven classes of this disease with which he was familiar, all of which are manifested in the acute and chronic form: The simple, pustular, eczematous, membranous, which is exceedingly violent (he having found the Klebs-Loeffler bacillus), deciduous (which is the case reported by Dr. Reynolds), syphilitic and blepharitis ulcerosa.

Dr. Geo. F. Suker, of Chicago, said he considered the loss of the lashes and thickening of the tarsus a secondary condition. He thinks it would be well to call it eczematous blepharitis. Not every case is due to refractive error; many are hypermetropic. Dr. Suker said he often used the silver nitrate in the same manner described for the use of the phenol, with good results:

Dr. A. Alt, of St. Louis, said he was in the habit of using corrosive sublimate in the same manner.

Dr. Heckel, of Pittsburg, wished to eliminate the word "marginalis" as superfluous.

Dr. Hotz, of Chicago, agreed with the essayist that ointments in the ulcerative forms are useless. Nitrate of silver, 20 per cent, or more, or carbolic acid as described, give him the best results. He has never had occasion to use heroic measures in the squamous varieties. He uses in this case an ointment of yellow oxide of mercury or ichthyol and vaseline. It is impossible for the patient himself to apply ointment properly along the upper lid margin.

Dr. J. W. Murphy, of Cincinnati, said he used 20 to 30 per cent nitrate of silver, as he had no success with the weaker solutions.

Dr. W. L. Dayton, of Lincoln, Neb., reported a case of a young lady with similar symptoms to those in the case described by Dr. Reynolds. The use of citrine ointment failed to relieve and he ordered her watched, with the result that she was discovered to pick the lashes out. She was not allowed to be alone day or night, with the result that she recovered with a good growth of lashes. On going for a visit away from home the lashes again were lost. She was again put under surveillance, with the result that the lashes grew without other treatment. It was a hysterical manifestation at the age of puberty.

Dr. Vail explained that in the case of the patient of Dr. Reynolds' seen by him he eliminated the possibility of its being a case of hysteria. The mother, to whom the possibility was explained, never lost sight of her for a week, but declared it was not possible that she was pulling them out. As he took hold of the lashes with his fingers they would drop out without resistance, without any evidence of pain, such as is exhibited when you draw a healthy lash. He said he had met with hysterical blepharitis, but did not believe this was such a case.

Dr. Stevenson, of Akron, thinks the essential thing in the treatment of these cases is cleanliness. The patient should be instructed not to put his fingers in the jar of ointment. He first cleanses away the scales and crusts to discover if there are ulcers present or mere redness. It is no doubt caused by vascular condition produced by eye strain. He uses 20 to 30 per cent silver nitrate solution.

Dr. Reynolds, closing the discussion. In the case reported to Dr. Vail, he had examined the margin of the lid with the magnifying glass and found there was no evidence of young lashes present, as would be the case where it had been pulled out. He thinks

it necessary for the surgeon to apply the ointment. There is difficulty in the use of nitrate of silver, because of the liability to run over the free border of the lid.

A Series of Glaucoma Cases.—Dr. George F. Fiske, Chicago. Dr. Fiske had prepared a chart showing thirty-five cases of this disease, for the sake of making a few deductions and bringing out practical questions. He thinks it is fair to say that the symptoms are due to an increase of tension, in its turn due to difficulty of excretion as compared with secretion. The point to be determined is the cause for this difficulty of excretion. In his series of cases there is not a single myopic eye, and almost all cases are hyperopic. The small eye is universally conceded to be the one most liable to this disease. He agrees with Weber and Priestly Smith that the difficulty is to be attributed to the small eye and lens of normal size. In these cases the ciliary body is enlarged and the flow of lymph from the vitreous to the posterior chamber is hindered. The veins of the ciliary body becoming too full, the swelling cuts off communication between the vitreous and posterior chamber, and the ciliary body is pushed forward and presses the root of the iris against the sclera at the point of union with the cornea. Dr. Fiske advocates the early iridectomy in all cases of glaucoma, to be followed by a second and a third if necessary. It is at the time of the first attack that the operation is most useful and most likely to conserve the sight. He believes that an iridectomy on the second eye, even when sound, would save many from blindness. The experience in his cases has been that the sight was preserved and the disease checked just in proportion as the iridectomy was early.

Discussion.—Dr. Rogers, of Columbus, thinks there is a growing tendency to perform an iridectomy early in these cases as compared with past years. He said he had operated on seven of these cases covering a period of ten years without cause to regret this procedure in more than one instance, in which latter the woman was past sixty-five years of age, with an atheromatous condition of the vessels. It was necessary to have a general anesthesia. The patient suffered emphysema which resulted in intraocular hemorrhages. She eventually made a fair recovery, retaining vision in one eye, while the other eye suffered diminution of about $\frac{2}{3}$.

Dr. W. H. Wilder, of Chicago. He believes in the efficacy of iridectomy in the acute glaucoma, and in the chronic glaucoma where there are acute attacks. He had a case where the posterior sclerotomy

changed the vision from almost zero to 20/20 in two weeks. This merely illustrates the fact that our theories do not obtain in all these cases. He thinks the thing of greatest importance in the study of these cases is the careful record of the field of vision. Every one has had cases of chronic glaucoma where central vision was normal and the peripheral vision is much contracted. Dr. Wilder described such a case in his experience, where the central vision was 20/40, but he saw as though looking through a gun barrel. An iridectomy was done, but the lens had to be removed piecemeal.

Dr. C. Barck, of St. Louis, said he thought an iridectomy should be performed as soon as possible in acute glaucoma. He told of the experience of a clinic in which pains had been taken to correspond with all the cases operated on. The statistics covered an interval of four or five years and agreed to a considerable extent. The sight had not declined more after the iridectomy in about 50 per cent; it had declined more or less in 25 per cent, and in about 20 per cent there was total loss of the eye. He recommends the early iridectomy, to be followed by eserine, and should diminution of sight obtain, a posterior sclerotomy.

Dr. Dudley Reynolds, of Louisville, concurred with Dr. Wilder as to the importance of making frequent record of the field of vision. It is in the peripheral contraction of the field of vision that we find the first manifestations of increasing danger. Dr. Reynolds thinks a great many operations might be avoided by giving a large dose of Rochelle salts, to be followed after the action of the salts by the salicylate of sodium in the definite dose of ten grains every half hour in a half pint of water, until pain disappears and the tension is reduced. At the time of operation a few drops of adrenaline 1-1000 solution is important.

Dr. J. A. Bradfield, of LaCrosse, Wis., described a case on which he had operated in which the anterior chamber was so nearly obliterated as to make the iridectomy difficult. Recovery was uneventful, but there was a slight cicatrix and he was advised another operation might be necessary. His refraction was corrected, and four months ago his vision was 20/20 with normal tension.

Dr. J. O. Stillson, of Indianapolis, agreed with the others as to the advisability of urging an early iridectomy. Speaking of the technique, he thinks eyes are often lost in the attempt to make an operation in a narrow anterior chamber with the lance-shaped knife.

Dr. George F. Suker, of Chicago, speaking of the pathology,

thought it might be considered a uveitis. He agrees with the essayist in advising operation on the second eye when only one eye has been attacked, as a preventative. He would not use 2 per cent solution of eserine: often 1 per cent is irritating. He thinks when you have a deep anterior chamber an iridectomy will not do much good.

Dr. Alt said he was certain it could not be found to be a uveitis, although we have secondary glaucoma following uveitis.

Dr. F. Hotz, of Chicago, thinks we will never be able to satisfactorily explain glaucoma, because we have two different diseases, which we can call acute typical glaucoma, and the so-called glaucoma simplex. In the one we have periodical attacks or exacerbations and remissions. In the so-called simple glaucoma we have nothing of that sort. In the first class we have the shallow anterior chamber; in the second class the normal and sometimes a deeper anterior chamber. In the first class we have increased tension, and in the second we often cannot find increased tension in the eye. But in the second class you will sometimes find a deeper excavation of the optic nerve. As long as it is attempted to bring all under one head there will be no satisfactory explanation. The pathologists report under difficulties, because they get the eyes in the last stages. When they get the eye it is a secondary process owing to the pressure on the iris by reason of the increased tension. Dr. Hotz endorses the position of the essayist as to performing iridectomy as soon as possible, and not as to operating on the second eye if it shows no glaucomatous condition, because it may not become glaucomatous for ten years.

Dr. Fiske, closing the discussion, said that the purpose of his paper was to make a plea for the early iridectomy. He did not agree with Dr. Suker as to uveitis. He had never had irritation with 2 per cent eserine. He had never seen a case of glaucoma where there was distinctly a deeper anterior chamber than in the normal eye when there were no adhesions between the iris and the lens. He does not think there is normal vision in eyes where there have been attacks of glaucoma.

How to Avoid Secondary Operations After Cataract Extractions—
By Dr. C. Barek, St. Louis. Dr. Barek said he had practiced the peripheric horizontal incision for a number of years, but gave it up on account of the number of secondary operations which it necessitated, and also because there is a certain amount of danger connected with it. For the past three years he has followed another method, which is a return to the old method with some modifications.

He lays stress on the long vertical incision, commencing inferiorly, going with the cystotome between the iris and the lens capsule downwards to the very periphery of the lens, and dividing by an upward movement the lens capsule as extensively as possible. At first he added to this a horizontal incision both right and left, but to simplify the procedure and to reduce the strokes of the cystotome to two, he has devised the following method: The first incision is of a crescentic shape, commencing laterally from the lower end of the vertical meridian; the second one commencing just as far mesially from this, meets the first somewhat above the center of the capsule. It is important that the two incisions really intersect. If correctly carried out the lower triangular flap usually falls downward, and the upper portions retracting leave a clear, central pupillary area. In a number of instances the remnants of the capsule placed themselves so that they just filled out the coloboma left by the iridectomy, which is beneficial from a cosmetic as well as an optical standpoint. In fifty cases he has had to make a discission in 5, or 10 per cent. In two of these the extraction had been followed by iritis, and in consequence of want of proper treatment, a closed pupil. He feels justified, therefore, in recommending this incision.

Discussion.—Dr. A. Alt, of St. Louis, did not think Dr. Barck's method as easy as some others, although he believes it may frequently leave a better scar. He uses the original incision of Knapp, which is T-shaped, but this does not remove the necessity of secondary operations.

Dr. Stillson, of Indianapolis, said he had been in the habit of making a round incision, but the chief difficulty in the last fifty cases is in the membrane or veil which forms.

Dr. Alt said this was the formation of a small membrane which forms at the opening of the posterior capsule which later on obstructs vision.

Dr. Hotz, of Chicago, said the only way to avoid secondary cataracts was to remove the lens within its entire capsule, as it is not the anterior capsule which gives the most trouble. We find this fine veil stretched over afterwards, dusted over with some fine deposits on it as the result of some slight uveitis or hyalitis following the operation. No ingenious splitting of the capsule will avoid operations.

Dr. Rogers agreed with the two preceding him that it is impossible to avoid a second operation unless the lens is removed in its capsule.

Dr. D. W. Greene, of Dayton, said he made incisions at right angles; cut from the bottom upward, then from the temporal side, then change the knife and cut from the nasal side. You have four segments of the capsule which will be out of the way. He thinks this an ideal operation for the prevention of secondary operations.

Keratoconus; Etiology and Importance of Early Diagnosis and Treatment.—Dr. J. A. L. Bradfield, La Crosse, Wis. This paper is limited to the discussion of the typical keratoconus characterized by ecstasia of the cornea just below and to the inner side of the optical center. In many cases it soon reaches a stasis, leaving only a slight irregular astigmatism; in others it is more serious, leaving not only a slight cone but great irregular astigmatism with myopia and accompanying low vision. The exaggerated cases have a well marked cone protruding between the lids and almost blindness. It is sometimes found in the rachitic subject but oftener in the nervous chlorotic individual and some fault with the general system is always present, the nervous phenomena common to puberty being the most important. The etiology is unknown.

The treatment should begin by correcting errors in the general health, rest of the eyes from all use requiring prolonged accommodation; correction of errors of refraction. In the early stages local applications of the crystal of alum should, after cocainizing the cornea, be gently passed over it from one to a half dozen times. In more advanced stages, myotics and iridectomy are valuable, but the author prefers cauterization, penetrating the entire thickness of the cornea, subsequently making iridectomy where it will give the best optical results.

Discussion.—Dr. Alt thought if the alum was used strong enough to harden the cornea it would interfere with nutrition and produce scerosis.

Dr. Suker asked if he considered it identical with keratoglobus, and whether a congenital condition; also in regard to the use of eserine and how long he continued it.

*Dr. Griffin, of Ann Arbor, said it seemed to him essential that the refractive error be corrected, especially if the patient is young.

Dr. Wilder, of Chicago, said that when cauterization is resorted to it of course means there will be a scar there which will interfere with central vision. He had one experience with fairly good results, in which he made a crescentic-shaped cicatrix with the cautery knife

at the base of the protuberance through Bowman's membrane. These are difficult cases and one hesitates to sear over that anterior surface.

Dr. Bradfield said, in closing the discussion, that it is his opinion that the center of the cone is simply due to the increased area. He does not consider it a congenital condition. He considers the nervous phenomena of puberty one of the most important factors in the etiology. He said his attention was called to the use of alum through the case of a young man who had had difficulty for some time and been so treated by a colleague with great success. How it does it he did not know. He said it was not worth while to begin treatment unless it can be followed up persistently for several months. He thinks iridectomy beneficial to myoties. It takes the tension from the anterior chamber. He thinks it difficult to properly refract these cases, because there is a different effect at different times, but with a mydriatic and a disc in front of the eye the patient gets the best optical results.

Electro-Cautery Treatment of Corneal Ulcers.—Dr. Jno. A. Donovan, Butte, Mont. If the wound be slight he either gives nothing or a boric acid and zinc wash with instructions to return in twenty-four hours. If there is then any irritation, he touches the spot lightly with the cautery at a very dull heat. This is usually all the treatment required. This has been his practice for three years and with the most satisfactory results, considering time, reaction and suffering. He uses a current transformer and a short, straight cautery point placed in the handle at an angle of 45 degrees. In some cases he does not reach the degree even of red heat. He makes small punctures about $1\frac{1}{2}$ to 3 mm. apart just in the edge of the healthy cornea, also in any part of the floor that appears unhealthy. In the rare cases in which the ulcer does progress in some direction, the advancing portion should again be touched just in the edge of the normal tissue. In wounds of the cornea when it has been completely perforated and is probably not aseptic, he touches the entire margin of both edges of the wound. He concludes that when a corneal wound is severe enough to require treatment, electro-cautery is indicated. With proper appliances in competent hands its effects are absolutely controlled and the results are better than to follow the use of any strong stimulant. The scar resulting is no more and is frequently less than if so-called less radical means had been employed.

Discussion.—Dr. Gamble said that his experience had been that the cause for poor success in treating these wounds that we could not

use irritating solutions and all antiseptics are more or less irritating. Theoretically he feels less danger in the use of the actual cautery than carbolic acid or nitrate of silver. It is his experience that when the cornea is perforated it will usually take care of itself and not become infected. He has never had occasion to cauterize the margins of wounds after perforations.

Dr. Suker called attention to the fact that zinc sulphate and boracic acid are chemically incompatible and therefore you get a precipitate. He thinks the essayist's conclusions are good, and that if the electro-cautery is to be used as a last resort, it can also be used in the first place.

Dr. Bradfield did not believe zinc should ever be used in corneal lesions. He has had experience with the wounds caused in the pearl button works, and uses nitric acid, dipping a wooden toothpick wound in cotton in the acid, which is allowed to dry before applying to the wound. It will turn white and you can regulate the depth you wish to go. He fears that with the galvanic cautery you would penetrate Bowman's membrane and have a permanent cicatrix. He does not use the nitric acid in advanced cases.

Dr. Conkey, of West Superior, said that while he considered the cautery an excellent remedy, it was not always enough in this class of cases, and sometimes the eye has been lost through depending upon the cautery alone. He thinks the wound should be kept open continuously until healed. By opening up the anterior chamber, the fluid passing out seems to have a more powerful antiseptic action than the cautery.

Dr. G. F. Keiper, of Lafayette, believed that the galvanic cautery is the best means we have at present for the treatment of corneal ulcers.

Dr. Stevenson thinks it is best to apply the cautery, and then remove, again applying it and making the operation longer and thus having less danger of heating up the aqueous humor and lens. He remembered a case in his own city where the cautery had been applied too long with a cataract as a result. He called attention to the use of atropine and eserin. He advocates rest and bandage in case there is not too much discharge. He has used nitric acid more frequently than the electric cautery.

Dr. Jos. Titcomb, of Duluth, Minn., said he believed the cautery to be the best single agent we have, and unless the ulcer be central, where there is danger from opacity, he almost invariably uses it.

Dr. Heckle said that while he did not think any one doubted

the efficacy of the electro-cautery he liked the effect of carbolic acid in small ulcers. He uses the protargol, 10-20 grains to the ounce. It is a good germicide with a beneficial effect.

Dr. J. W. Scales, of Pine Bluff, Ark., said he found that locality had a strong bearing on the results of treating corneal ulcers. He thinks if the treatment carried out in the average hospital were depended upon in his part of the country a great many eyes would be lost. The patients have large spleen, liver inactive and a general asthenic condition. With such a patient it is necessary to rouse his secretions, and the most important thing in Arkansas is calomel. He would not hesitate to give 20 to 25 grains calomel in order to secure an immediate effect. Ten to fifteen grains would be the average dose in less urgent cases. Until a reaction is secured, palliative remedies are needed. For this he uses hot applications. He would not attempt to stimulate the ulcer until he gets action of the man's liver. With the use of the cautery one result will be secured in one instance and a different one in another.

Dr. Wilder agreed with Dr. Donovan in his conclusion that if this treatment were good as a last resort it is good as the first in every case. But he does not believe that one should use this rather severe treatment in so simple a thing as a scratch of the cornea from a child's finger. Wherever you burn the cornea you will have a scar, and if this happens to be central it may interfere with vision, and he does not think this should be risked until antiseptic irrigations, etc., have been tried. He relies more on carbolic acid and nitrate of silver in these cases. Another point made by Dr. Wilder was that when the corneal ulcer is deep you will have that little knuckle of the membrane of Descemet sticking up like a little pearl. In spite of cauterizing, this will stick there and prevent the healing of that wound, and it is necessary to puncture this keratocele.

Dr. Donovan, closing the discussion, said in regard to the use of zinc, he uses it one to two grains to the ounce as a rule, and in that proportion it is hardly a stimulant. He said he did not intend to advocate the use of the cautery in wounds which seemed to be doing well, but in case it was thought they were infected. He had used nitric acid on several occasions, but could not recall just what the results were. He thinks everybody with a sore eye should go to bed, but finds it difficult to get his patients to do so. He usually applies the cautery just as you would touch paper with a pencil, and draws it immediately away. He does not use Fluorescence any more. If the ulcer is severe enough to need treatment

it shows where it is. The flourescene will stain normal cornea. He does not consider boracic acid and zinc sulphate incompatible. It makes an absolutely clear solution and you get an astringent effect that you do not get from either alone.

Tuberculosis of the Iris, W. H. Wilder, M. D., Chicago. The author says this disease is manifested in three forms: 1st, solitary tubercle; 2nd, desseminated tubercle, and 3rd, simple, inflammatory tuberculous iritis.

The first affects one eye alone and develops as a small round or oval nodule, usually at the periphery of the lower part of the iris. The color is grayish-red and as it grows it fills the anterior chamber of the eye, much resembling a neoplasm. It may easily be mistaken for a sarcoma. As the growth increases the cornea becomes involved and perforates, allowing the mass to break through. The appearance is similar to that of granulation tissue. It then breaks down and the eyeball gradually begins to shrink as the inflammatory process occasioned by the growth subsides. The eye is of course lost and phthisis bulbi ensues. General tuberculous infection may result.

In the second form, which may occur in one or both eyes, there are at first all the symptoms and signs of an iritis. Soon small yellowish-gray nodules, surrounded by a slightly reddened zone, appear in the iris. Their favorite site is at the root or periphery of the iris. They seem to be constantly changing, some disappearing while others are forming. This predilection for the outer zone of the iris helps to distinguish them from the condylomatous nodules so frequent in syphilitic iritis and which are usually seen at the pupillary margin. Some of these tubercles may disappear completely, leaving small patches of atrophied iris, while others may coalesce, forming larger tuberculous masses that fill in the angle of the anterior chamber. The iris is dull and discolored and flakes of lymph and disintegrated tuberculous nodules may fill in and occlude the pupil. Firm adhesions form between the iris and the lens and the tension of the eye may markedly increase. Ciliary injection is marked and the eye is frequently tender to pressure. The ciliary body and choroid may be invaded and the cornea may be involved. Tubercular meningitis or general tuberculosis may supervene, so that the prognosis both general and local is bad.

In the third form the tubercles are not clinically demonstrable, being situated in the tissue of the iris and not on the surface. It assumes the form of a chronic iritis or irido-cyclitis, which causes

either complete annular posterior synechia of the iris or adhesion of its posterior surface to the lens. The tuberculous nature of the trouble may be demonstrated by excising a piece of the iris and examining it microscopically. Deposits of lime are frequently found in such irides, and even true bone formation has been observed.

All the forms mentioned present the same histological features, *i. e.*, the typical tubercle formation of round cells around a central giant cell. This latter is a large crescentic or round structure with non-granular protoplasm containing near its periphery numerous elongated nuclei. This is a disease of childhood and adolescence. Most of the patients affected have either pulmonary tuberculosis or tuberculous manifestations in other structures. Most have a bad family history, while some have neither a family or personal history of tuberculosis and show no manifestation of it excepting in the lesion of the eye. This would raise the question whether the iritis is primary or secondary to some other tubercular lesion. Many capable observers take the view that it is primary. It is argued that the eye of a sound person may be infected locally through an abrasion of the cornea or through an ulcer, in this manner giving entrance to the bacilli. (Dr. Wilder showed interesting microscopic specimens.)

Discussion.—Dr. Alt said he considered tuberculosis of the eye a rare disease, although seen, possibly, more often than recognized. He thinks the term “infectious granuloma” is better.

Dr. Suker said he had some experimental knowledge of this disease. He makes a small corneal incision and injects the vacilli with a small syringe. In 36 hours you will see a little growth begin and you can watch it nicely. Rabbits are very susceptible to this iritis.

Dr. Jos. Beck, of Chicago, was interested from the histological and pathological point of view, having had the pleasure of seeing tubercular iritis at Graeffe's laboratory as well as in Vienna. He thought the point of distinction between tubercular and syphilitic manifestation made by the writer was a good one, the one being peripheral and the other central. Dr. Beck also called attention to the re-action from the use of tuberculin, which was obtained where there were any pathologic findings.

Dr. Stevenson, of Akron, said that the best differential point was that in the tubercular iritis there is a grayish, translucent color, while in the syphilitic it is a more highly colored red, and even of a violet tinge.

Dr. Wilder closed the discussion, calling attention to the fact

that giant cells are found in many conditions, which may be confusing. In tuberculosis, however, they are round or elliptical, being regular in outline. Another point that the nuclei in the giant cell of tuberculosis are peripheral and usually elongated. Another important differential point is that in the tubercular form you have the growth beginning in the adventitia. He had seen the tuberculin used in the service of Nettleship in the Royal London Hospital with no result, and yet the patient had tubercular iritis and the eye had to be enucleated. Dr. Wilder had a microscopic specimen from this eye.

Mydriatics in Refraction of Presbyopes. O. A. Griffin, Ann Arbor, Mich. The essayist called attention to the contention that had existed as to the propriety of using mydriatics in testing the refraction of adult ametropes, but more particularly in testing the presbyopic ametropes. Dr. Griffin thinks that when a patient presents himself for relief from an ametropic eyestrain, be he young or old, the same difficulties of making an accurate estimation of the refractive condition of the eye, without the aid of a mydriatic, obtain to a greater or less degree. He is convinced, after making several thousand refractions, that the aid of a cycloplegic is not only necessary to the accomplishment of an accurate refraction of the young adult, but may be frequently employed with profit in the testing of presbyopic ametropes. If it is necessary to correct an ametropia at all, why burden the patient with a glass that removes only a portion of his trouble, when every vestige of strain and discomfort might be eradicated? He thinks the danger of the employment of homatropin in presbyopic eyes has been greatly exaggerated by most writers, although as routine practice he uses a myotic to neutralize the effect of the mydriatic. He said that atropin was used in corneal and iridic disorders without a thought of danger, but when suggested as an aid to refraction of presbyopic ametropes it suddenly assumes a potency for harm in the minds of some. He has yet to meet the instance where the supposed increase of tension or any other deleterious condition has resulted from his use of the drug, either as a mydriatic or cyclopegiae. He thinks the risk incurred is practically *nil*.

Discussion.—Dr. Bradfield thought it might be necessary to use cycloplegics after 50 years of age in rare cases. But he insists on determining the glass to be given after the effect of the cycloplegic has entirely disappeared. He does not think it necessary to correct small degrees of astigmatism in the presbyope.

Dr. Miner said that he invariably uses in every case of refraction homatropine, without reference to the age of the patient. He has never found increase of tension in a single case, although he has looked for it. He finds patients much better satisfied where the astigmatism is corrected.

Dr. Gamble emphasized the conclusions of Dr. Griffin's paper. He uses the homatropine in every presbyopic case that comes to his office to be fitted, unless there was a contra-indication. He has never found difficulty from its use.

Dr. Stevenson said that he had used the homatropine in his presbyopic work for three years. He has better results by using the retinoscope and is more certain of his refraction.

Dr. Suker said he would like to compliment the essayist on his ability to distinguish between one-fourth and one-eighth of a diopter with the retinoscope.

Dr. Griffin closed the discussion. Referring to Dr. Suker's remark in regard to distinguishing the slight difference in astigmatism, said he did it every time and that it could be accomplished by close study. He makes the subjective test and then the retinoscopic test, and with few exceptions the patient accepts best the findings of the retinoscope. He has found cases at 65 and even 70 years of age where a satisfactory examination could not be made without the mydriatic. It is results he seeks, and with the homatropine has been able to give the highest amount of satisfaction to his patients.

Double Optic Neuritis Complicating Whooping-Cough. Dr. W. E. Gamble, Chicago. Dr. Gamble gave a report of the only three cases revealed in literature by a diligent research, with one of ischemia of the retina coincident with this disease. He then describes a case of his own observation. From these cases he draws the following conclusions: Optic neuritis occurs in girls, beginning about the 14th day of the convulsive stage in half of the cases. Evidence of cerebral trouble was present in half the cases. Ophthalmologic findings in the authentically reported cases shows optic neuritis without hemorrhage in the opticus. Disturbance in the motility of the iris was reported in all the cases, and in three vision was greatly reduced. Perfect restoration to sight occurred in one case, and but little disturbance of sight is probable in author's case. In one case white atrophy followed with quantitative vision.

There is a probability that the cause is not the same in all cases. Modern authors almost unanimously give credit to mechanical in-

fluences, with the accompanying hemorrhage into the brain, cerebral meninges and other circulatory disturbances. The optic nerves may become involved with such complications, when meningitis ensues in the form of a descending neuritis. The consensus of opinion has not settled upon any particular germ as the cause of this disease. Pronounced leucocytosis, or more precisely speaking, lymphocytosis, seems to be the only blood change so far observed. It is possible that fatty changes occur in this disorder in the capillary endothelium of the vessels of the brain and the optic nerve. This infectious disease is characterized by convulsive or spasmodic manifestations. Peripheral neuritis does occur in this disease. In the author's case he thinks it is due to the direct action of the toxins of whooping-cough upon the nerve tissue, which he explains according to Metschnikoff's theory of phagocytosis.

Prognosis as to sight good, when no cerebral complications exist.

Discussion.—Dr. Wilder said that this case occurred in his service at the Illinois Charitable Eye and Ear Infirmary. The peculiar feature was that there should be this disturbance about the optic nerve and yet so little functional disturbance of the eye. It was evidently a case of beginning neuritis. Whether due to the toxins of whooping-cough or due to spasms is but a surmise.

Neurasthenic Asthemopia. Dr. Louis J. Goux, Detroit. Dr. Goux said that neurasthenia is not a disease but a group of diseases—a sort of diathesis with a most varied symptomatic expression. In the large majority of cases degeneracy forms the ground work for the development of the malady. The disease may also be due to accidental causes, such as shock, traumatism, etc. As occasional disorders we have all the circumstances, physiological or pathological, moral or physical, capable of suddenly or slowly producing nervous exhaustion. There are certain symptoms that are rarely absent, and they are as follows: Headache—frontal and occipital; sensation of emptiness of the head; insomnia and disturbed sleep; psychic adynamia; motor enfeeblement; spinal hyperaesthesia; gastro-intestinal atony; genital and vaso-motor disorders. Because the symptoms referred to the head are usually so aggravated, the patients so often seek the advice of the ophthalmologist. The author's experience with these patients that the vision is normal or nearly so. Assuming that a mydriatic is used as routine practice, he says the first thing to put the physician on guard is the statement, by the patient, as the examination progresses, that there is a continued failure of vision,

complaining of fatigue and requesting periods of rest. The longer the examination is continued the more restricted becomes the field of vision. There is a constant shifting of the axis of astigmatism, and this may be true whether actual astigmatism exists or not. Employing the maddox rod test, it is found there is no permanent point of fixation of the streak and often there is a characteristic swinging motion, like the swinging of the pendulum of a clock. He considers the foregoing symptoms pathognomonic of neurasthenia, especially when there is found no refractive error, or one so low as to be out of proportion to the intensity of the symptoms. Color-blindness is sometimes present, and the patient sometimes complains of lacrymation, dread of light, neuralgia, etc. Blurring of vision seems to be the most disturbing feature.

Further investigation will reveal the presence of other stigmata of neurasthenia. The neurasthenic eye is only a link in the chain of symptoms. It is the sum total of all the different manifestations which present the typical picture. The disease is almost exclusively confined to young females, though occasionally seen in women undergoing menopause. When associated with hysterical amblyopia the diagnosis is much simplified.

There is no reason why these patients should not be affected with refractive errors the same as any other class, and often they are greatly benefited by the prescription for the proper glasses; but considering the origin of the true neurasthenia, which is central, we are not justified in promising or expecting a cure. The patient should be given a clear understanding of her condition and her mind dispossessed of the idea that glasses will be a panacea for all her sufferings. Rest from near work is the most essential element in establishing a relief or a cure. Vigorous physical exercise in the open air and gymnastics indoors in inclement weather, will be found the most efficient in caring for these unfortunates.

Discussion.—Dr. Griffin said he has at present a patient under observation that brings out a good many points made by the author of the paper, a professor in the University of Michigan, who is very neurasthenic. He is a hard worker, and has some peculiarities. He imagines he can tell when he has a rise of temperature by a peculiar twist of his eye. He was tested at this time, but no rise in temperature could be demonstrated. He had about $\frac{1}{8}$ astigmatism in one eye. He had difficulty in obtaining glasses for his presbyopia. He could see two lenses all the time, although the glasses were

centered perfectly. These are most unsatisfactory cases, and have to be handled with a great deal of care.

Dr. Bradfield, referring to these patient's insisting upon wearing glasses, told of a child in his care whom he saw at first at the age of 7. She never wore any glass to exceed a year. She was finally sent to Dr. Wilder, who refracted her carefully and came to the same conclusion. He prescribed minus 50, with the suggestion that after she had worn them three months she was to return for full correction. He gave her full correction after three months, and she only wore the glasses about two months.

Dr. Heckle, Pittsburg, Pa., said these conditions were very perplexing and call for all the ingenuity a man may possess, for the reason that the refraction varies from day to day and from month to month, and the thing taxes the physician's patience and the patient's patience. Sometimes the glasses are of no avail at all.

Dr. Goux, closing discussion, noted that some neurologists say the cases are practically incurable. They are mostly hysterical people, and if they are cases of degeneracy they cannot be relieved. He finds if he pins his patients down to actual statements, they are not wearing their full correction faithfully as instructed. He has two cases where the patients could not wear the glasses at all, though the latter were correct. The variable condition of the patient, dependent upon the condition of the nervous system, make the condition so different from time to time that what you might prescribe as proper today might tomorrow be of no avail.

Degenerate Ocular Changes Resulting from Consanguinity of Parents. Lee Wallace Dean, Iowa City, Iowa. The author is sure that if there be a perfect parent stock and if the offspring be perfect, there can be no bad result from consanguinous marriage, but it is rare to find such a perfect condition, as a perfect stock is a rare thing in the human race. On the other hand, if there is in a family some hereditary taint, the consanguinous marriage of the first degree simply doubles the tendency for the development of the hereditary conditions. Such a condition may have been latent for generations, and the marriage of first cousins has so doubled the tendency that several of the children will show the same degenerate conditions. With the exception of the central nervous system, we find the largest variety of degenerate stigmata in the eye, for the reason that the eye is really a specialized portion of the brain and is consequently subjected to the same influences as the central nervous system during its development. He questions whether retinitis

pigmentosa should be placed in this category. He cited several cases of his own observation where there was consanguinity of the first degree in the parents, and while there was no family history of eye trouble, there was varying degrees of degeneration in this regard in the children. A large per cent of Albinos are the result of consanguinous marriages.

The cases of microphthalmus coloboma of iris, congenital cataract and anophthalmus mentioned are examples of arrest of development. The condition of the eye is not due to local conditions but to some central disturbance. With our present knowledge of the physiology of the central nervous system, one cannot say as to whether they are developmental centers, that is, centers which control the growth of parts, or whether they are simply the trophic centers which control their nourishment. The condition is due to a disturbance of the tropic center, or of both if they exist. One may expect these degenerate conditions in the products of consanguinous marriages, because of the increase of the same hereditary tendencies in the germ. By means of the nuclear division and formation of the second polar body, the excessive accumulation of different kinds of hereditary tendencies or germ plasms is prevented. With the removal of the second polar body as many different kinds of idioplasm are removed from the egg as will afterwards be introduced by the sperm nucleus. If the latter contains the same hereditary tendencies as the ovum, there will be a greater tendency for these to become manifest than if the latter were different.

Discussion.—Dr. Vail reported that in seven children in two families where the parents were cousins, five had congenital cataract.

Dr. Alt told of a large family in Illinois where they had intermarried for years and they nearly all have cataract. One member of the family, a physician, comes to him every year to see if there is any sign of beginning cataract. In that family 43 cases had been operated upon for cataract.

Sarcoma of the Choroid. W. Stanley Samson, M. D., Lancaster, O. This is considered a rare disease, occurs most frequently between the 40th and 60th years, seldom occurring in childhood, in which respect it differs from glioma. The prognosis is grave and always proves fatal if the tumor is not removed early. The treatment is enucleation as soon as the diagnosis is certain that the growth is confined to the ball.

Dr. Samson described a case which he operated upon. The pain

preceded blindness one year, which differs from the typical clinical history. Also a case of doubtful diagnosis following a traumatism, in which operation has been advised and refused.

Discussion.—Dr. Vail said that he had within the past six months removed the entire contents of the orbit, and that while it seemed heroic, it was one of the easiest operations he had ever attempted, much to his surprise. He described the operation as similar to taking a pie out of a pan with a knife.

Dr. Alt said that while in former years detachment of the retina was considered a point of diagnosis, it had been proven to be untrue.

Dr. Bradfield said he always wants to have a cautery at hand when he takes out the contents of the orbit, and asked how the essayist covered up the orbit afterwards.

Dr. Vail said that he simply packed the orbital cavity and that he had found the hemorrhage inconsequential. He would regard the use of the galvanic battery or chromic acid in this locality dangerous, it being so near the brain. He did not find it necessary to do plastic surgery.

Dr. Wilder said he had treated a number of desperate cases in this way and all had good results. He also feels better satisfied when he has the cautery ready at hand. By gently touching the vessels with the cautery at a dull red heat, they can be seared perfectly without much danger. Some of these cases will take a long time to heal. He has used long ribbon strips of Tiersch grafts and folded them around the orbit, which concludes the case promptly.

Dr. Samson said he controlled the hemorrhage by pressure with sterile gauze. He has never found it necessary to use grafts.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XII. No. 6.

CHICAGO, JUNE, 1903.

NEW SERIES.

ORIGINAL ARTICLES.

SOME OPHTHALMIC CASES I HAVE SEEN.

BY ALEX. W. STIRLING, M. D., C. M. (EDIN.), D. P. H. (LOND.),
ATLANTA, GEORGIA.

The following cases, which I have seen at various places, may be worth perusal. Some of them have been published before.

1. *Complete Separation of Iris and Dislocation of Lens.* A carpenter of about twenty-five years of age was hit in the eye about twenty-seven months previously by the recoil of a spring. Iris and lens were both gone. On looking down into the vitreous the iris could be seen lying at the bottom with the lens on top of it. At the macula was some choroidal atrophy giving rise to a central scotoma so that the patient saw the eyes, lips, ears, but not the nose when it was looked at.

2. *A Pink Eyed Negress.* A young adult woman, who would pass for a very fair white person, but for the negroid type of face and the "kinkiness" of the straw colored hair. The eyes are without pigment, and, as is always the case with albinos, there is marked nystagmus. I have never heard of an albino without nystagmus.

3. *Anophthalmos.* I have seen one of these cases, in a baby. The rudiments of eyes can always, I believe, be demonstrated by dissection.

4. *Atrophy of Entire Choroid.* Of this I have seen several cases. It is remarkable how acute central vision may remain in these cases. While the retinal vessels may appear normal, those of the choroid are laid completely bare to vision, and look not unlike a basket of eels. In some of the vessels no blood stream may be seen, and in others only a central thin thread within the white-walled vessels, and yet the patient may see 6/5 and J1, though the field is small.

5. On the anterior surface of the *lens capsule* one occasionally sees white dots, and I have seen them at the same time attached

to the iris, and moving with it. These are no doubt remains of the foetal fibro-vascular membrane. A distinct wrinkling of the capsule I have also seen after a blow, without other sign of rupture. In pathological sections the anterior surface of the capsule may be wrinkled, as in one of buphthalmia in my collection secondary to anterior synechia. I remember a case of a Y-shaped vessel imbedded in a very thin layer of lymph on the surface of the capsule. In the sections of ruptured lens capsule which I have seen the lesion was at the equator.

6. In connection with *Cataracts* some of the less usual cases are the following:

(a) Unilateral, in childhood, not lamellar, milky in appearance and consistence, and flowing from the lens capsule and out of the cornea when the needle is pressed to one side of the puncture. The question is whether these cases are not due to traumatism of some kind.

(b) The senile lens may absorb, nucleus and all. The oldest case I remember to have seen was 46, but I know that the lens has been needled at an age greater than that and has disappeared completely.

(c) One of the most peculiarly shaped cataracts I have seen was tri radiate, each bar having a ball attached to one and the same side of its distal extremity, like three crotchets fastened together at one end. The patient was a young man.

THE OPHTHALMOSCOPIC EXAMINATION OF THE MACULA.¹

BY EDWARD JACKSON, M. D.,
DENVER, COLO.

The interest awakened in this subject by the magnificent demonstrations with the Thorner Ophthalmoscope, make it especially appropriate for discussion at the present time. There is danger that in the new enthusiasm it may be forgotten that the region of the macula can be seen without widely dilating the pupil, flooding the eye with a powerful light, carefully adjusting the patient's head to a fixed position, and looking through an elaborate and expensive instrument.

¹ Read before the Colorado Ophthalmological Society, March, 1903.

There is also need to guard against the mistake thus alluded to by W. Adams Frost (*The Fundus Oculi*, p. 66): "Ophthalmoscopic examination of the macula without the previous employment of a mydriatic is often difficult, because the pupil contracts strongly when the light falls on this region, and also because the corneal reflection of the mirror lies in the line of sight. Hence many observers are less familiar with the physiological variations of this part than they are with those of the optic disc. Consequently, when an unexplained amblyopia leads to a thorough examination, changes of the macula are apt to be diagnosed on rather insufficient evidence."

Without questioning the splendor of the general view of the macular region, which may be obtained with the demonstrating ophthalmoscope, especially that of Thorner, or the importance of being able to exhibit particular fundus changes to those who are not expert ophthalmoscopists, it seems worth while to call attention to what can be done in studying the macula with the ordinary hand ophthalmoscope; and to the best ways to meet the peculiar difficulties that have to be overcome, when making the examination through the undilated pupil.

These difficulties arise from the corneal reflex, and the physiological contraction of the pupil caused by strong illumination of the retina. If the little image of the lamp flame reflected from the patient's cornea could be perfectly focused upon the observer's retina, it would be so small that it would not seriously interfere with the ophthalmoscopic examination, as indeed it does not by the indirect method. But in the direct examination it cannot be so focused; and the circle of diffusion that it forms is so brilliant, as compared with the fundus illumination, that the details of the macula cannot be seen through it. The ophthalmoscopic examination by the direct method, the best for studying details of the macula, must be made by looking to one side of this reflex. To do this the reflex must be made as small as possible, by reducing the size of the sight-hole.

TO REDUCE THE CORNEAL REFLEX.

With the surgeon's eye at 25 or 30 mm. from the eye of the patient, if it were not for the smaller sight-hole, the apparent size of the light reflex on the patient's cornea would be about the size of the surgeon's pupil. If the pupils of surgeon and patient were of the same size, the light reflex would just cover the patient's pupil. If, as is common under the conditions of the ophthalmoscopic examination, the surgeon's pupil were the larger, the light reflex would more than cover the pupil of the patient.

This may be understood by examination of Figs. 1 and 2. Fig. 1 represents the surgeon's eye having its anterior focus at A. (15.5 mm. in front of the anterior focal plane, or 13.5 mm. in front of the cornea). Rays diverging from this anterior focus, will be parallel in the vitreous and fall upon the retina, forming a circle of diffusion having the diameter R S, equal to the diameter of the pupil.

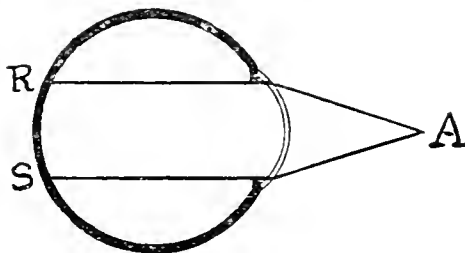


FIG. 1.

If, however, the rays come from a point twice as far from the eye as its anterior focus, (29 mm. in front of the cornea), they will tend in the vitreous toward a focus twice as far back from the posterior principal plane of refraction, as is the posterior focus of the eye; and the pencil of rays reaching the retina at the posterior focus would have half the diameter of the pupil.

Thus, in Fig. 2 suppose the small corneal image of the light flame which causes the reflex to be situated (as it is approximately when making the direct ophthalmoscopic examination) at P, twice as far from the eye as A the anterior focus. Then R S the diameter of

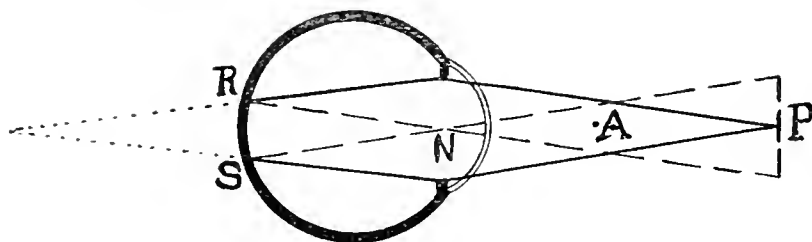


FIG. 2.

the circle of diffusion will be half the diameter of the pupil. This circle of diffusion projected outwards upon the patient's eye, will have an apparent size about double that of the circle at R S; because the distance of P from N, the nodal point, is just about double the distance of N from the retina at R S. That is, the circle projected at P would be about the same size as the surgeon's pupil.

Diminishing the size of the sight-hole, diminishes proportionately the circle of diffusion. It does not diminish the circle of diffusion quite so rapidly, as contraction of the surgeon's pupil would diminish it. The sight-hole is one-fifth to one-third nearer the corneal reflex

than is the surgeon's pupil. Hence the circle of diffusion admitted by it will be one-fifth to one-third larger than the sight-hole. Under the usual conditions of examination, the corneal reflex will appear one-fifth to one-third larger than the sight-hole through which it is viewed.

The size of the patient's pupil, and the size of the sight-hole in the mirror determine the difficulty of seeing past the corneal reflex to examine the region of the macula. With the sight-hole 1.5 mm. in diameter, the apparent size of the corneal reflex need not be more than 2 mm. The majority of eyes examined in a good dark-room with rather feeble illumination, will show pupils of 3.5 mm., or more in diameter, even when the light is reflected upon the center of the macula.

With a sight-hole of 1.5 to 2 mm. one can study the region of the macula, and recognize the important details of the ophthalmoscopic picture in a large majority of eyes. With a sight-hole of 3.5 or 4 mm., such as Loring adopted for his ophthalmoscope, the recognition of details in the macula with the undilated pupil, becomes more difficult. And with a larger sight-hole still, it would be quite impossible, were it not for the principle of the half mirror to be presently referred to. The larger sight-hole was chosen by Loring, not to facilitate the examination of the fundus oculi, but to increase the accuracy of the ophthalmoscope as an instrument for measuring refraction.

On going over this matter some years ago, it seemed to me that an additional exactness in the measurement of refraction with the ophthalmoscope did not compensate for its diminished efficiency as an instrument for examining the fundus of the eye. I therefore chose for my ophthalmoscope, a sight-hole 2 mm. in diameter. My experience with such a sight-hole indicates that for general use a still smaller one would be more satisfactory. Certainly for the examination of the macula, a sight-hole 1.5 mm. in diameter is to be preferred.

THE HALF MIRROR.

The ordinary ophthalmoscopic mirror throws into the patient's eye a pencil of rays as large as the pupil, less the part lost on account of the sight-hole. But the Thorner ophthalmoscope, and the electric light ophthalmoscope of Wolff, Suker, and De Zeng employ a mirror which is intended to throw light into only one-half of the patient's pupil: while the surgeon's eye placed behind the edge of the mirror receives light only through the other half of the pupil. By this arrangement the corneal reflex is made to cover only the half of

the pupil which the surgeon does not look through. Something of the same effect may be gotten with the ordinary ophthalmoscope having a large sight-hole, by holding the instrument to one side so that the edge of the sight-hole will come in front of the center of the surgeon's pupil. Doing this, one sees the corneal reflex removed to one side; and reduced, so as to allow details of the fundus to be easily seen beside it. Were it not for the (often unconscious) adoption of this plan, it would generally be impossible to examine the macula with the ordinary Loring ophthalmoscope. But even used in this way the mirror with a large sight-hole is inferior to both the one with a small sight-hole, and to the half mirror.

THE VISIBLE FIELD.

The portion of the fundus visible at any one time by the direct method of examination, depends upon the nearness of the surgeon's eye to the patient's pupil, and the size of that pupil. If the surgeon could bring his own nodal point to the anterior focus of the patient's eye, the visible field would include a circle just the diameter of the patient's pupil. This is illustrated by Fig. 1, by taking it to represent the patient's eye. If the surgeon could place his own anterior nodal point at A the part of the patient's retina visible to him would be circle having the diameter R S equal to that of the patient's pupil. But when the distance between the eyes is twice as great, about as close as it can be in practice, the visible portion of the retina will be half the diameter of the patient's pupil.

The contraction of the pupil when the macula is strongly illuminated, lessens the portion of that region visible at any one time. On this account the visible field at the macula may have only one-half the diameter, one-fourth the area of the portion visible when the optic disc is looked at. This makes it necessary when examining the macula to bring one's eyes just as close as possible to the patient's pupil. It also limits the strength of the light that can be used to illuminate the retina. A very strong light reduces the pupil so much, as to greatly diminish the visible area; even when the surgeon's eye is brought as close as possible to the patient's.

ILLUMINATION OF THE RETINA.

As compared with other portions of the eye-ground, the region of the macula is of decidedly darker color. The physiological peculiarities and the pathological changes of appearance that it presents are usually minute and difficult to discover. Hence strong illumination would be of especial assistance in examining this part of the

fundus. The chief conditions of strong illumination are excluded by the necessity for keeping the pupil as large as possible. Still some important things can be done to improve the retinal illumination.

The contraction of the pupil depends upon the total light entering both eyes. By making the examination in a thoroughly darkened room, with the patient facing a black wall, much light that would help to contract the pupil will be excluded, allowing more of the light that furnishes useful illumination to be thrown on the retina. Then the light that does enter the eye must be concentrated wholly on the part of the retina to be examined. To do this the mirror must have such a focal length that all the light it reflects through the pupil will all fall within the visible area.

When there is necessity for a particularly strong illumination, it may be concentrated on a small part of the visible area. By this concentration of the light on a particular point to be examined, a very good illumination of the retina can be obtained at the macula, in most eyes without use of a mydriatic. Of course this plan of concentrating upon a small portion renders a general survey of the fundus tedious and unsatisfactory. But it does enable us to carefully study to advantage small lesions in the macula with the ordinary ophthalmoscope, and an undilated pupil.

The mirror which will give the greatest concentration of light on the retina, will be the one that accurately focuses on the retina the light from the source used. In a relaxed emmetropic eye parallel rays will be focused on the retina, and the lamp flame will need to be placed at the principal focus of the ophthalmoscope mirror to render the rays parallel. For an eye with 2 D. of hyperopia the rays must be rendered 2 D. convergent. To do this with a mirror having a focal distance of eight inches, the lamp flame should be placed thirteen inches from it.

To get the best illumination of the retina it might be supposed that quite a series of mirrors of different focal lengths would be required. But variations in the distance of the source of light may be supplemented by lenses placed in front of the eye. These will, in effect, change the refraction to suit the mirror used. This expedient is of especial value in cases of high myopia, in which the light would otherwise be diffused over a wide region extending beyond the visible field.

When instead of inspection under strong illumination of a minute portion of the retina, one wishes to make a general survey of the visible area, the same means, the appropriate placing of the source

of light, the use of a lens in a trial frame before the eye, may be employed to secure the needed circle of diffusion—just as large as the visible field of the retina.

SUMMARY.

The region of the macula can usually be examined with the ordinary ophthalmoscope through the undilated pupil, if the instrument be used to the best advantage.

The corneal reflex can be so reduced as to allow the surgeon to see through the pupil alongside of it: By making the sight-hole small, 1.5 mm. in diameter, by holding the sight-hole so that one edge of it is in front of the center of the surgeon's pupil, or by using the half mirror.

The visible field can be enlarged by getting close to the patient's pupil and excluding all unnecessary light.

The illumination of the retina can be rendered brilliant at a certain point, or diffused equally over the whole visible field: By adjustment of the source of light at the proper distance from the mirror; and by placing the right lens in a trial frame before the patient's eye.

SPRING CATARRH.*

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Spring catarrh was first described by Arlt in 1848; he considered it a peculiar variety of Conjunctivitis Lymphatica. Subsequently, Desmarres mentioned it under the title of Hypertrophie Perikeratique. Von. Graefe spoke of it as gelatinous thickening of the limbus. Hirschburg as Phlyctenula Pallida. Saemisch, who was the first to bring into prominence the characteristic exacerbations during the warm season, called it Vernal Catarrh. Raymond de Furin was the first to draw attention to its complications. Horner studied especially the complications of the palpebral conjunctivae and pointed out that in almost all cases characterized by pericorneal changes (nine cases out of ten) there is found a papillary hypertrophy of the conjunctivae of the upper lid. Burnett was the first to call attention to the peculiar discoloration of the bulba conjunctivae in the negro.

Spring Catarrh is a chronic disease of the conjunctivae most frequently seen in childhood and youth although adults do not escape. Vetsch reports a case in a woman of thirty-seven; Duane in one of

* Read before the Ophthalmological and Otological Society at Washington, D. C., February, 1902.

thirty; my cases have ranged between two and twenty-five years. It causes very characteristic changes in the conjunctivae of the lids and ball. The patients usually complain of photophobia, stinging pain, great itching with the addition of a stringy muco-purulent secretion which coming across the cornea interferes with the vision; they also inform us that these symptoms are aggravated by warm weather and that a few cool days in summer give temporary relief; and that the annoying symptoms almost entirely disappear during the winter months but return in the spring.

Characteristic as the subjective symptoms are, the objective symptoms are more so. Upon examining the eye we may find only the conjunctivae covering the tarsus involved, that is, the tarsal variety; or, it may be limited to the conjunctivae of the ball, that is, the bulba variety; or, both may be affected at the same time. Considering first the pathological changes in the upper lid, we find upon everting the same a most characteristic, pathognomonic condition of the conjunctiva over the tarsus, it being covered with broad, flattened, papilliform excrescences deeply seamed and furrowed, thus giving in miniature the appearance of a rough, irregularly paved street; over the whole is a delicate, bluish-white film as if a thin layer of milk had been spread over the conjunctiva. The growths may be so large and so numerous as to cover the entire surface of the lid or may be few and small and yet none the less characteristic.

Last summer I saw a case in which the circumcorneal hypertrophy was particularly well marked, the conjunctivae discolored but only three small, flattened granulations in the center of the right lid close together and the size of a small pin head.

We have even a more characteristic appearance if the bulba conjunctivae be involved; as it is thickened and unequally raised at the limbus (hence the name, circumcorneal hypertrophy), forming pale, translucent or waxy nodules encroaching upon the cornea but extending to a greater distance outward into the conjunctiva of the sclerotic. Over the nodules the epithelial layer is uneven and thicker than normal. The nodules are more prominent in the intrapalpebral space being somewhat flattened above and below from the mechanical pressure of the lids. The changes in the cornea may be at only a few points, but usually involve the entire circumference, extending furthest over its surface above and below. I believe that in most cases this change begins first at the superior limbus, then the inferior, and lastly, the sides become involved. Duane reports two cases, in one of which the morbid process involved the entire cornea, and in the other,

a small central area alone escaped. Von Millegan says such cases are frequently seen in Constantinople, where this disease occurs much oftener than it does here.

Burnett was the first to call attention to the peculiar and remarkable appearance of the conjunctivae of the negro in this disease and so complete is his description that I cannot do better than to quote it verbatim: "This consists in a brownish discoloration of the conjunctival tissue, most intense at the scleral base of the mass, and gradually fading away toward the equator of the ball. This discoloration, which is undoubtedly situated in the conjunctival tissue itself, as well as in the epithelial layer, is not regular in its distribution but appears to consist of a collection of small deposits of brown pigment. These deposits are sometimes collected in rather large masses, particularly near the base of the elevation, but towards the equator they appear as small, brownish specks in the dull and succulent conjunctiva. In some instances this brownish discoloration extends but 3 mm. from the circum-corneal elevation, while in others it reaches almost to the canthus. It does not usually extend so far towards the equator of the globe in either superior or inferior direction. In one case I have seen the whole of the conjunctiva visible through the palpebral opening present this dirty, light-brown appearance in striking contrast to the brilliant, white aspect which the sclera usually presents in this race." In every case that I have seen in the negro I observed this condition.

Theobald says: "I cannot recall a single instance in which I have met with both types (*i. e.*, pericorneal and tarsal) co-existing in the same individual." Burnett claims that the tarsal conjunctivae is involved in all cases though the granulations may be so delicate as to resemble "fine meal grains" and found only along the posterior border. In all of my cases in the negro, ten, I found *both types* but the pericorneal was much the worse and I am inclined to think that in the negro the pericorneal variety is much the most common form; the morbid process first attacking the bulba conjunctiva, the palpebral conjunctiva becoming secondarily involved. Conversely, we have the opposite condition in the white race. The morbid process seeming to attack first and chiefly the palpebral conjunctiva and in the majority of cases being confined thereto.

The text-books, with scarcely an exception, discuss this disease only briefly, and it is often mistaken for Phlyctenula Keratitis but most frequently for Conjunctivitis Granulosa especially in those cases in which there is an entire absence of pericorneal changes, and such cases are not at all rare especially in the white race. H. Grandle has

called attention to the same fact and reports twelve cases in which only one presented very small pericorneal nodules: the majority of these cases had been diagnosed as Trachoma by most of the Ophthalmic surgeons who had been previously consulted. (Archives of Ophth. XXIV.)

At the annual meeting of the British Medical Association held in Montreal in 1897, the president, Dr. Edward Nettleship in discussing this disease said: "In tarsal cases there is sometimes very great difficulty in distinguishing between it and Trachoma." Darier says, "a confrere in the province sent me in August, 1896, a patient with the diagnosis reached by him and four other oculists of Conjunctivae Granulosa. I had hardly everted the upper lid when I recognized the so-called Trachoma as a most typical and characteristic case of the tarsal variety of Spring Catarrh."

Indeed some writers claim that Trachoma and Spring Catarrh are pathologically the same disease. In the pathology of the disease I will show this to be impossible. The history and a careful examination should enable one to readily make a differential diagnosis.

PATHOLOGY:

Darier says: "In the acute stages of Trachoma the granulations are characterized more by their contents which are seen, as it were, by their transparency than by their papillary hypertrophy: they become solid and hard only by subsequent hypertrophy of the connective tissue which only supervenes slowly, while from its commencement the tarsal form of Spring Catarrh is characterized by a dense and hard papillomatous hypertrophy which never shows even the slightest center of softening or breaking down."

H. Villard, Annals of Oph., 1897, says:

"I. The epithelium changes its character and becomes stratified pavement except in furrows where it preserves its cylindrical character.

II. It contains mucous cells especially numerous in its furrows.

III. It is invaded by migratory leucocytes.

All these characters closely identify it with the epithelium of Trachoma, *but it is a mere resemblance and not a true identity of structure.*

Below the epithelium we find a tissue which is dense and compact, and presents the following structure: It is formed of fibrous bands which are sometimes very thick and anastomose with each other and form a large fibrous frame-work analogous to the fibrous tissue of the tarsus with which it seems to be continuous. Among the large

bands are found finer fibrous fasciuli which anastomose with each other. The outer spaces of this very well-developed fibrous stroma are filled with numerous white corpuseles presenting a strong resemblance to those white corpuseles with a single nucleus seen in granulations. These are therefore large leucocytes with a round or oval nucleus, which stain well with haematoxylin.

These leucocytes are never grouped in nodules; they are scattered everywhere in the deep as well as in the superficial portions of the section. If in any one spot they form slightly more enlarged masses than in another it follows that in that spot the fibrous bands are less compact and dense and permit the accumulations of the leucocytes; but these accumulations are always irregular and non-encapsulated; what is more, at the edges of these pseudo-nodules the leucocytes merge insensibly into that of the surrounding tissue.

These leucocytes with a single nucleus are not the only ones met with in the substance of the tissue of Spring Catarrh; in many places a considerable number of these leucocytes, with several nuclei, are found in process of migration as is indicated by their elongated form.

Vessels are rather rare in this fibrous tissue; some of these are filled with leucocytes. In some cases the nuclei of the endothelial cells of the vessel-wall *are swollen* which indicates *very clearly* their inflammatory nature. The leucocytes do not appear more numerous around the vessels than in other parts of the section. In some sections are found culs-de-sac of the meibomian glands and these are quite normal. The tissue proper of Spring Catarrh is entirely different in its minute structure from that of Trachoma; the principal difference which I have mentioned may be summed up under the following heads:

I. Leucocytic and diffuse infiltration; the masses of leucocytes do not form nodules which are clearly defined, easily distinguished from the surrounding tissue and which are ordinarily enclosed in a connective tissue capsule with very fine fibers as is seen in Trachoma.

II. The leucocytic infiltration has not the same situation as in Trachoma. I have shown that the tarsal conjunctivae may be separated into two quite different layers; a superficial or mucous one, formed of delicate connective tissue infiltrated with numerous leucocytes; and a deep or fibrous layer formed of thick, dense bundles of connective tissue so closely crowded as to scarcely permit infiltration by leucocytes. I have also shown that the granulations develop exclusively in the superficial or mucous layer and never invade the deep or fibrous layer into which they merely dip down slightly. Now, nothing like this is

seen in Spring Catarrh; the leucocytic infiltration far from being limited to the superficial or mucous layer is generally found in both layers of the conjunctivae. It is a topographical distribution of prime importance which completely differentiates it from Trachoma.

III. The fibrous tissue which forms the principal part of the tissue of Spring Catarrh is a tissue with thick resisting bands and differs totally from the connective tissue with generally thin and delicate bands of Trachoma.

According to Vetsch we may have one of three endings; it may disappear completely; or, the corneal limbus may become permanently thickened, giving the cornea a narrow, contracted appearance; or, it may result in genuine corneal opacity.

So far no one seems to have found a successful treatment for this most obstinate and annoying affection although some cures have been reported. The question might arise were these cures *post hoc* or *propter hoc* as the disease may disappear of itself.

It is very evident that the treatment for the tarsal variety must differ from that for the bulba. Noyes and Nettleship think that cauterization is the best treatment for the tarsal form. I have tried this faithfully but with negative results. Darier reports a cure by "shaving off the growths with a long scalpel down to healthy cartilage." He further says that if the growths are not numerous "scarifications, incisions close together and crossed—repeated in four days—will produce a relative cure in two months. May have to be repeated for two or three springs." Theobald (*Annals Ophth.*, January, 1897), reports two cases in which Knapps roller forceps were used; one cured and the other greatly improved. In severe cases may have to use forceps several times. Meyer recommends a specially devised rubber coil for applying cold water to the lids, of course this is not expected to cure but is most grateful to the patient. Many ointments and drops have been recommended but none appear to be of much benefit.

For the bulba variety, so far as I am aware, the treatment has been medicinal with one exception. Dr. Reeves reports curing a case by scraping away all of the diseased tissue about the cornea and says: "The effect was magical, no reaction whatever."

Pagenstecker recommends massage twice a day with strong precipitate ointment. Schwanzky, weak ointments, cold sponging or iodoform ointment 1 to 15, once a day. Meyer, calomel and iodoform insufflations. Fuchs 3 per cent boracic acid solution and 1 to 2 per cent of white precipitate ointment; for the itching and photophobia 2 per cent solution cocaine. Darier, massage with mercurial ointment

made up with lanoline. Randolph at the annual meeting of the British Medical Association in 1897 reported two cases cured with salicylic acid ointment 6 to 10 grains to the oz., rubbed in well twice a day and solution soda salicylate 10 grains to the oz. of water dropped into the eye every four hours. In a letter of very recent date, he says: "Since the publication of the above I have not had the success I would wish but it still does better work for me than anything else I have tried." DeWecker, Horner and others recommend constitutional treatment, especially arsenic.

Regarding the treatment of the bulba variety I have nothing to add as I have not succeeded in curing any cases. For the subjective symptoms I use soda salicylate 10 grs., cocaine gr. 2 to 5 to the oz. four or five times a day. This is very soothing and gives more relief than anything else I have used. With the tarsal growths I have been more fortunate. I have operated three times; in the first case, which was the worst I have ever seen, I cut the growths off smooth and cauterized their base thoroughly. This I repeated several times but in a few weeks the growths would return. The reaction was considerably more than in the operation to be described. In the other two cases (the first in private practice and the second in the Children's Hospital in September, 1900), under the influence of cocaine I eurented the diseased surface thoroughly, breaking up all the papillomatous excrescences, using one blade of a pair of fixation forceps for the purpose, a pair with five or six teeth is best, then with a small, stiff tooth-brush, the bristles of which had been cut down to a fourth of an inch or less, I brushed back and forth with considerable force until all the diseased tissue was removed and we had a clear cartilage before us. If you have been *clean* in your operation there is *no* reaction and in a few days we have macroscopically a new conjunctiva. One case was cured and the other greatly improved, failing I think to be a complete cure because the brushing was not sufficiently thorough. I believe that in this way we can remove from the tarsal cartilage all of the diseased tissue, and if this is done we should have a cure.

A NOTE ON THE USE OF JEQUIRITOL AND JEQUIRITOL SERUM. (MERCK).

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Probably in consequence of some remarks made in the *Practical Medicine Series* and elsewhere favorable to the above remedies, I have been frequently asked to describe more exactly the manner of their employment. I have, therefore, taken the liberty of translating Merek's circular and of adding a few observations of my own for the benefit of those who have not used jequiritol, or who have not read Roemer's articles on the subject.

Jequiritol and jequiritol serum were introduced into ophthalmology by Dr. Roemer of Wurtzburg—for particulars his article on the subject is recommended.

It is used in the treatment of just such forms of chronic inflammation of the eyes as, formerly, the infusion of jequirity was used.

The new method is so much superior to the old that its introduction into practice must be looked upon as a decided advance in the conduct, especially of pannus and other trachoma sequelae. Jequiritol is an extract made from the seed of *abrus precatorius* after several improved methods and particular precautions. It is used in a sterile solution mixed with 50 per cent glycerine so that an exact dose can be given without evil effects, which was not possible with abrin or the old infusion. It comes in four different degrees of strength. No. 1 is the standard strength. A subcutaneous injection of 0.01 ccm. of this solution kills a white mouse weighing 20 grams, in four days. The strength of the others is on the label. The jequiritol serum is made on the Behring principle, like the abrin serum of Ehrlich, which has the power of neutralizing the poisonous effect of jequiritol when applied locally to the human conjunctivae, or given hypodermically. This is mixed with 0.25 per cent carbolic acid and 1.1 ccm. will render immune a mouse against 100 times the usual lethal dose, when both are mixed and given subcutaneously.

Directions for use (Roemer) : A single drop (0.01 ccm.) of No. 1 is dropped into the eye by means of the capillary tube. If nothing happens, the dose must be daily increased until a typical jequiritol inflammation is set up. Sometimes no reaction occurs until No. 2 is used, when the acute inflammation is finally induced, and subsides in a few days; then the eye will stand a still stronger dose. Immunity is obtained after a number of inflammatory attacks, and at last the

strongest dose produces no effect. In this way treatment goes on, allowing the absorption of trachomatous exudates, pannus, corneal opacities, etc. If twenty-four hours after the employment of a dose the inflammation appears to be too severe, several drops of the jequiritol serum should be instilled into the eye frequently during the day. If these directions are carefully followed, it will rarely happen that the subcutaneous employment of the jequiritol will be required. The results in the very chronic cicatricial forms of trachoma with old pannus are extremely good.

On the neck of each vial will be found an etched ring and at one point in it a notch made by a file, at which the top can be readily broken. The neck of the bottle is covered with a glass cup which afterwards serves for a cover. The pipette should be cleansed *after* using. No alcohol or carbolic acid should be employed *before* using, as these agents coagulate the jequiritol. Dr. Roemer's first article is entitled, Experimentelle Untersuchungen über Abrin—(Jequiritol)—Immunität als Grundlagen einer rationellen Jequirity-Therapie. Graefe's Archiv für Ophthalmologie. Band LII. Heft 1, 1901.

THE ACTION ON MUCOUS MEMBRANES OF SILVER SALTS, WITH ESPECIAL REFERENCE TO SOME OF THEIR NEW ORGANIC FORMS.

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To discuss the therapeutic action of the silver salts from any point of view, the nitrate is the first that would naturally present itself to our minds, since it has been one of the staples in *Materia Medica* from time immemorial.

Its potency is so great that oftentimes its misuse has resulted in much damage. In ignorant hands this inorganic form of silver is a dangerous remedy. Like all other things of potentiality, its misuse may result in as much disaster as its proper use may do good. Like fire, nitrate of silver should be applied with discretion—good in its place and in proper strengths—but equally as bad when used without thought.

Should I not say that it is, from a clinical standpoint, more like

* Read before the Georgia State Medical Association and before the staff of the Presbyterian Hospital of Atlanta.

electricity, potential either for good or evil, according to the intelligence of him who applies it? Yet many of its disadvantages in some cases prove to be its advantages in others, and the vice versa is as equally true. The nitrate of silver can be used much stronger, with not only better results, but with much less of its objectionable features, on squamous mucous membranes, such for example as we find on the deglutation part of the throat, than upon the columnar, and more especially upon the columnar-ciliated mucous membranes. Its irritative and caustic properties are especially objectionable to both the columnar and to the columnar-ciliated form of epithelii.

We may in a general way remember, that mucous membranes that are subjected to wear and tear are of the squamous variety, the columnar next and then the columnar-ciliated. The last especially resists less the contact or touch of anything foreign, and especially of anything that is irritating or caustic.

A much stronger solution of the inorganic salt can be applied, and advantageously so, to the lower pharynx and tonsils, than to the upper pharynx and nasal mucous membranes, and still a lesser strength must be applied to the Eustachian tube with its columnar-ciliated epithelium.

This rule applies to all other mucous membrane tracts and cavities. Hence one of the chief objections to our old standby—the nitrate of silver—is its irritating after effects, and this applies whether we use it on the conjunctive, in the urethra, or on the nasal mucous membrane, with the exception only that mucous membranes of the squamous variety are always, and under all circumstances, benefitted by it, when the strength is properly considered. But when it is used on either a columnar or a columnar-ciliated epithelium, in any considerable strength, it coagulates and destroys the outer layers and does not penetrate into the mucous membrane layer proper. It is upon this idea alone that all the new organic preparations of silver are, or can be based.

Yet one word more about the inorganic form: In its greater strengths it does just what we want it to do, under certain conditions. It cauterizes and destroys already broken down tissues and stimulates a new and healthy growth beneath, but just here come the questions: How strong shall it be? When and where shall we use it? What is the character of the membrane upon which we should use it?

Nitrate of silver is not yet relegated as a past number, and perhaps it never will be, however many substitutes it may have, since there are some forms of mucous membrane necroses in which it is an

ideal applicant, not to mention the many other conditions in which it is most appropriate in its weaker forms.

It is somewhat analogous in its effects to quinine in its action in its different strengths. As quinine is tonic, antipyretic or antiphlogistic according to its dose, so is nitrate of silver stimulant, sedative and caustic, according to where it is applied and in what strengths. If applied too strong it may produce a stricture in the urethra, a stenosis in the nasal cavity, or a symblepharon of the conjunctiva.

And now we are brought face to face with some of the claims of the new organic forms of the salt after having placed our reliance for so many years upon this one that is inorganic.

Some of the recent proteid silver salts have in a measure and under certain conditions, already taken the place of our old standby, and justly so. They are better than it in some cases, because they are eliminated of its irritating and caustic properties.

Protargal, argyrol and albargin are the commercial names given to some of the most prominent of these organic salts of silver. The first, protargal, I believe has been the most useful as a substitute of the nitrate in genito-urinary practice, but it can be so substituted, and with much advantage to the mucous membranes of all other tracts and cavities, especially where the lining is either columnar or columnar-ciliated, and when the subjective irritation is a consideration.

I shall not go into its genito-urinary adaptations since I have had no experience with its use in that line, but suffice it to say that if we can judge by its voluminous literature, it would seem to have almost superceded the nitrate, just as argyrol is superceding the older salt in the ophthalmias.

Even the old and classical Crede's method is rapidly giving way to the use of argyrol in the largest lying-in-hospitals, not only in this country but in Europe, mainly because of its non-irritant and non-caustic properties, but also because it penetrates deeper into the mucousa and is more decidedly bacteriological in its effects. Albargin, which contains a much less percentage of silver than argyrol, is a jelatose silver and hence seems to give up its base more gradually, more slowly, and to have deeper penetrating properties than some of the others, and for these reasons in some cases, may produce a more desirable effect. While there are still other proteid organic compounds of silver, all of which are based upon the idea of substituting, or improving upon the old inorganic form, I have not had enough experience with them to do them justice just now.

The object of this paper has simply been to call attention to the

fact that we must recognize and test this new idea, that so many chemists are now working upon, viz., that some ideal silver salt can be produced upon an organic or proteid basis that will eliminate the objectionable features of the nitrate. The literature on the use of these new organic silver salts has been voluminous during the past few years and I must refer you to it in this short paper for the exact indications and strengths of each. But I will herewith attach a full bibliography that you may have if you wish to pursue the subject as to the adaptation of each. As I have already stated, it has been my object only to impress the fact that we must recognize this comparatively new idea of silver in its organic compounds and that we must finally decide which of them we shall use? When we shall use it? Upon what mucous membrane and in what strength?

Some of the bibliography of protargol, albargin and argyrol:

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INEFFECTUAL ATTEMPT TO REMOVE A PIECE OF STEEL FROM THE EYE WITH THE HAAB MAGNET.

BY WILLIAM H. WILDER, M. D.,

CHICAGO, ILL.

C. P., 42 years old, while hammering an iron hoop on a barrel was hit on the left upper lid with a small splinter of iron or steel. The small wound bled profusely, and he noticed that the sight of the left eye soon became very dim. Two days later, on February 2, 1903, he consulted me, when it was discovered that the particle of metal had passed through the upper lid and had penetrated the eye ball, making a small vertical cut through the upper limbus involving the iris and lens. The lens was becoming opaque and the media turbid. The cut was about 3 mm. in length involving the ciliary region, and to it the iris was adherent. The vision of the eye was 20/120, that of the right was 20/30. The pupil would not dilate fully with atropin. A small black spot seen behind the cut suggested either a foreign body or iris pigment. No foreign body could be seen in the vitreous. An X-Ray picture, however, showed a small opaque spot well back in the lower part of the vitreous chamber. On the afternoon of the same day, February 2, an attempt was made to remove the steel with the Haab magnet, Dr. W. A. Fisher kindly placing his instrument at my disposal, and rendering assistance. Although the sitting was prolonged for more than half an hour, the search was fruitless, for not only was the steel not removed, but the patient did not experience any sensation as if it were being drawn upon. He was given bichloride irrigation 1-5000, sodium salicylate grs. xv every three hours, frequent hot applications and bandage. The vision was falling rapidly, and by the next morning it was reduced to perception of light and there was hypopyon. Another prolonged attempt to extract the foreign body

* Reported at the meeting of the Chicago Ophthalmological Society, April 14, 1903.

with the giant magnet was made, but although the instrument was used in the various ways described by Haab, it was ineffectual, though at times the patient had severe pain as if the steel were being pulled by the magnet. Two days later, on February 5th, it was clear that the eye was lost, and enucleation was advised, but the patient and his wife did not consent to this until the next day, when the eye ball was removed.

The specimen shows the fragment of steel firmly imbedded in exudate in the posterior part of the vitreous chamber.

The case is interesting in that the small piece of steel passed completely through the lid before entering the eye ball, and also by reason of the fact that the inflammatory exudate held it so firmly that it could not be drawn forward by the powerful magnet.

INCISED WOUND OF THE CORNEA MADE BY A FRAGMENT OF SPECTACLE LENS.

BY S. MITCHELL, M. D.,
HORNELLSVILLE, N. Y.

Those who practice ophthalmology have doubtless many times commented upon the infrequency of really serious wounds to the eye from having a fragment of a broken spectacle lens penetrate any part of the eye-ball of the wearer. When we consider the vast multitude of people who wear spectacles, this infrequency seems all the more remarkable. The immunity of spectacle wearers from accidents of this sort is due, no doubt, to the fact that the first effect of the blow, which shatters the correcting lens, is to dislodge the frame or mountings from the nose of the wearer. Thus if any part of their anatomy is injured by the sharp fragments of glass, it is not the eye-ball, but preferably the cheek, or brow, or the inner side of the bridge of the nose.

I have never met with but one case of penetrating wound of the globe, where the instrument of destruction was a fragment of the victim's own correcting lens. This occurred in the person of a married lady, about thirty years of age. She was a myope, of whose history I knew absolutely nothing previous to her coming to consult me on account of the accident, the particulars of which I shall presently relate.

She was wearing a pair of —5.50 spherical rimless lenses in riding bow mountings, when she first came to my office, the same pair she was wearing at the time of the accident, except that the left lens,

which was broken at the time of the accident, had been replaced by an optician.

The date of the first visit was September 26th, 1902, two days after the receipt of the injury, which occurred as follows: While breaking some kindling wood with an axe, a piece of the wood was projected against the left spectacle lens, breaking the lens into two pieces, one fragment of which produced the injury to the cornea of the right eye. The wound was about 7 or 8 millimeters long, through the entire thickness of the cornea, and extended diagonally across the exact center of the apex of the cornea, upward and outward, and was as clean cut as though made by a sharp knife. The anterior chamber being empty, the iris was lying in close contact with Descemet's membrane, although no part of it had become incarcerated in the wound. All movements of the eyelids, that produced any pressure upon the eye-ball, caused slight gaping of the wound. This condition undoubtedly played a very important part in preventing a timely healing of the wound. There was very little ciliary congestion. Pain and photophobia were not complained of at all. Tension was very much reduced and vision amounted to the counting of fingers at thirty inches. A mild solution of atropine was instilled in the eye every four hours and a bandage applied. This treatment was followed for two weeks, without any visible change in the condition of the eye.

At this time she was induced to enter St. James Hospital, where for ten days she was kept in bed with both eyes bandaged, thus favoring immobility of the eyes, and a freedom from the nipping of the eye-ball by the lids, which produced a gaping of the wound. The result of this procedure was disappointing and three weeks later, when she left the hospital, the wound had apparently made no progress towards healing. She remained at home for several weeks, all the time keeping the eye covered with a shield and pad of cotton, and coming occasionally to my office for treatment.

On November 20th she was suddenly seized with violent pain in the eye and right side of the head, accompanied by nausea and vomiting. I saw her about two hours after this attack. The eye was very much congested, and the conjunctiva somewhat chemotic. Tension was + 3. Vision amounted to L. P. only. I advised the immediate performing of an iridectomy. This proposition was not accepted until four days had elapsed. Meanwhile a 1 gr. solution of eserine was prescribed, one drop being instilled every half hour for the first twenty-four hours and then at varying intervals for some time afterward.

On November 24th she was sent to the hospital, and on the same day placed under chloroform anesthesia and a good free upward iridectomy performed. The iris was found to be adherent to the cornea along the whole track of the wound. After the completion of the iridectomy, a moderately broad spatula was passed into the anterior chamber and all these adhesions thoroughly broken up.

The eserine solution was instilled into the eye twice a day for a week or ten days following the operation. The eye made a rapid and uneventful recovery. Pain and tension was relieved immediately, and on the second day after the operation vision had returned to about the same acuity as previous to the attack of glaucoma, viz.: ability to count fingers at thirty inches. Five months have now elapsed since the operation for iridectomy was performed. A few days ago I had an opportunity to examine the eye and found it in a perfectly normal condition. There is a slight improvement in vision.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XII, No. 6.

CHICAGO, JUNE, 1903.

NEW SERIES.

REPORTS OF SOCIETIES.

ABSTRACT REPORT OF THE SECTION ON OPHTHAL- MOLOGY, AMERICAN MEDICAL ASSOCIATION, NEW ORLEANS, LA., MAY 5, 1903.

The meeting was called to order by the president, Dr. John E. Weeks, of New York.

Address of the Chairman, Dr. John E. Weeks, New York.

Dr. Weeks said that the by-laws of the Association defined the character and limits of the Chairman's address to remarks on "recent advances in the branches belonging to the section, including suggestions in regard to improvement or methods of work," but that he would digress sufficiently to welcome the members to this session and to offer thanks for the splendid manner in which they had supported the officers in their endeavor to present a program of valuable papers.

Some years ago Dr. Casey A. Wood started the idea of having a distinguished ophthalmologist attend the sessions of the section by inviting one from Paris though at the last moment word was received that the gentleman could not attend. Last year the Chairman, Dr. Frank Allport, of Chicago, had given the section the privilege of meeting Professor Haab, of Zurich, Switzerland, and the precedent established by his predecessors was one that he thought should be continued. He had endeavored to emulate the example set, with results similar to those of Dr. Wood.

He believed the Section on Ophthalmology to be the representative body of ophthalmologists in the United States; that its membership was wider than that of any other society. As a part of a great association it had collateral support and was founded upon a constitution and governed by by-laws sufficiently broad and liberal to permit of indefinite expansion. He considered that the method of officering the section provided against the danger of the domination of cliques and of the continuation of officers through courtesy or

otherwise that might endanger its activity. He thought the possibilities of the section were great and that all should endeavor to cause these possibilities to be realized by lending their influence to the production of work of the highest order. The inducements to become identified with the section were greater than those offered by any other association of ophthalmologists in this country, some of them being contact with representative colleagues from all parts of the United States; the assurance of large attendance; the publication of accepted papers and the discussions in a journal having a larger circulation than any other medical paper in the United States, as well as the publication of the papers and discussions in a bound volume at a nominal cost.

He thought it scarcely necessary to mention the recent advances in ophthalmology as they would be presented in better form and more in extenso by the members. Some lines of research that promised much could be mentioned; as the effect of the x-ray and of the Rinsen ray on neoplasms, detached retina, deep inflammatory processes and suppurative processes. The study of the bacteriology of the eye had not yet been exhausted. There were still some acute processes of apparently bacteriological origin, as Parinaud's conjunctivitis, trachoma and some of the suppurative diseases of the cornea. The question of the value of subconjunctival, intra-orbital and intra-bulbar injections too were as yet in a chaotic state. An exhaustive paper on orbital neoplasms embracing a careful study of modern methods would be heartily welcomed by all ophthalmologists.

Vernal Conjunctivitis.—Dr. Wm. Campbell Posey, Philadelphia. The essayist outlined the history of the generally accepted picture of the disease known as Vernal Conjunctivitis and of the differential diagnosis and spoke of the frequency, physical characteristics, and distribution in the United States, based on answers to circular letters to ophthalmic surgeons in all parts of the country and gave his observations regarding the pathology, etiology and treatment.

Discussion.—Dr. John E. Weeks, New York: The disease was one that had interested him a great deal and to which he had given much study. It was his observation that the cases occurred among the well-to-do in a proportionately larger percentage than in those whose hygienic surroundings were less favorable. A striking feature of the disease he thought was the variability in the **length of time** during which it persists. There seemed to be no particular predisposition, the disease occurring equally as often in the robust as in those of poor nutrition. He had been able as yet to find no proof of con-

tagion, though he had observed it affecting several children in the same family. It differed from trachoma in that the retro-tarsal fold never presented vegetations. In the treatment he had found mild measures to serve best—bathing the eyes with a warm solution of boracic acid, 1 to 1½ per cent, twice a day and the use of the yellow oxide ointment once daily. He considered that the use of cocaine was not beneficial.

Dr. Henry Dickson Bruns, New Orleans: Called attention to the relation of the disease to phlyctenular ophthalmia and referred to the frequency of that disease in the negro race. He believed the phlyctenular ring appearing around the cornea was a phlyctenular phenomenon.

Dr. Henry Gradle, Chicago: Considered the changes of a progressive nature increasing from year to year, a history dating back more than one year being sufficient to establish a diagnosis. The disease resembled in some respects hay fever, though he had not seen hay fever existing with the disease. As a rule the retro-tarsal folds were not involved, but there were exceptions. The cornea was invariably exempt. He had obtained the best results with adrenalin.

Dr. Zentmayer, Philadelphia, corroborated the observations of Dr. Posey regarding the classification. He regarded the clinical picture as a racial type of phlyctenular conjunctivitis.

Dr. Baker, Cleveland, Ohio, had never made a diagnosis of vernal catarrh. Unless phlyctenular conjunctivitis were called "vernal catarrh" he did not consider that the disease existed in his locality.

Dr. Hiram Woods, Baltimore, thought the type of the disease seen in Baltimore corresponded with that described by Dr. Bruns. He had seen only two cases with corneal complications. There was no pain or photophobia, but the typical annular ring.

Dr. Stevenson, Akron, Ohio, spoke of the recent observation that passing a glass or metallic rod over the conjunctiva produced itching in the one case or painful sensation in the other as an aid in differentiating between trachoma and vernal catarrh. He referred to the use of the x-ray in the treatment, Smith and Warren having claimed considerable benefit from its employment.

Dr. Stricker, Cincinnati, considered that when the ocular conjunctiva was involved the disease was one of phlyctenular conjunctivitis. He did not believe there was a vernal catarrh of the ocular conjunctiva.

Dr. H. Gifford, Omaha, considered ocular vernal conjunctivitis and phlyctenular conjunctivitis as distinct diseases. He had seen

the disease in perfectly characteristic form in two negroes. He considered the one sided cases as having had the disease in both eyes originally with a return in the one eye.

Dr. J. H. Claiborne, New York, desired to place himself upon the side of those having seen vernal catarrh. He had not seen the disease in the negro, though at one time living in the south. He had the best results from the use of nitrate of silver and atropin.

Dr. R. L. Randolph, Baltimore, thought about five years ago he had discovered a specific in the salicylic acid ointment, but later had not had such good results with it. It seemed to be of most benefit in the treatment of the ocular vernal catarrh, less in the palpebral form.

Dr. Morrow, Canton.—The salicylic acid ointment, spoken of by Dr. Randolph, had given him the best results, the strength used being five or ten grains to the dram.

Subtropical Trachoma.—Dr. Rufin A. Wright, Mobile, Ala.—The writer considered trachoma chiefly in its clinical aspect, basing his consideration of the disease upon the following hypotheses: that it is a distinct disease characterized by a granular and hypertrophic condition of the palpebral conjunctiva and its transition folds; it tends to progress in a fixed manner, varying only in degree; certain complications and sequellæ mark its course; it is contagious and a distinct disease from follicular conjunctivitis; it is capable of being modified by proper treatment. He was of the opinion that the type of the disease in the south was milder in form and less frequent in serious complications. As to racial immunity his experience had been negative. He had never seen a case of true trachoma in the negro. The state boards of health had not inaugurated any system of inspection or exclusion of cases from the schools. He advocated the use of a recent remedy, copper citrate, claiming for it: that it produces absorption of the granulations; that it is less irritating and readily used at home, in the form of an ointment of 3 to 10 per cent in white vaseline.

Discussion.—Dr. Dunn, Cairo, Ill., thought the treatment might be divided in that used before the appearance of the granulations and that used after. He thought the disease might be aborted early by germicidal remedies. After the appearance of the granulations nothing compared with the use of the roller forceps.

Dr. A. O. Pfingst, Louisville, thought there was considerable misconception as to the nature of genuine trachoma and that many of the cases so called were not trachoma. He congratulated the author

of the paper upon his success with the new remedy, but thought the number of cases so treated too small to base definite conclusions upon.

Dr. H. Gifford, Omaha, spoke of the difficulty of securing the drug. The few cases in which he had tried it were in line with the results obtained by Dr. Wright.

Dr. Harlan, Baltimore, reported the case of three Russians detained in Baltimore for trachoma, in which the symptoms subsided and disappeared entirely after an attack of measles; the father, who had had measles before, having to undergo a protracted course of treatment.

Dr. Ledbetter, Birmingham, was of the opinion that the trachoma of the south did not differ from the disease elsewhere.

Experimental Study on Some Methods of Combating Postoperative Infection of the Anterior Segment of the Globe.—Dr. E. C. Ellett, Memphis, Tenn.—The writer referred to the experiments of Ostwalt in introducing iodoform into the anterior chamber of the rabbit's eye and later injecting a culture of the staphylococcus, by which purulent inflammation was prevented, and to Romer's report of its use in three cases. The author carried out a series of seven experiments along these lines, using iodoform rods made with gelatine, containing 50 per cent iodoform, and came to the following conclusions: Iodoform used in three cases of streptococcus infection: one failure, two successes. In two cases of staphylococcus infection: two successes. He also referred to one clinical case, cataract followed by infection, in which the iodoform was introduced in the form of powder, no cones being available; result being failure. Method: Peripheral incision made in cornea, the rod caught at one end with forceps and pushed into the chamber completely. The author concludes that the method has a field of usefulness, with no possibility of harm. Must be used early, certainly not later than the second day.

Discussion.—Dr. Edw. A. Shumway, Philadelphia, thought the best way of introducing the iodoform was by means of these rods and that the best results might perhaps be secured by canterizing the wound and then introducing them. It was not possible to keep the powdered drug from being washed away, out of the anterior chamber. He thought it of great importance to first evacuate the opaque lens center and to use vigorous internal medication, salicylate of sodium in large doses having proved of great value.

Dr. Frank Allport, Chicago, had experienced great difficulty in securing the discs or rods. He had used some left him by Dr. Haab

last year, but had been unable to have them properly made. One difficulty was to make the rods aseptic. Efforts to sterilize them resulted in making them difficult to handle. He had used them a number of times and obtained good results.

Dr. G. E. de Schweinitz, Philadelphia.—The sterilization of the iodoform, which, of course, was not a sterile product, could be accomplished by washing the powder in sterile solutions of bichloride of mercury. He spoke of the pain, severe in character on the night following the introduction of the rods, necessitating the use of hypodermics of morphia.

Dr. J. H. Claiborne, New York, referred to some experiments which Dr. Colburn and himself were carrying out with the use of formaline. They had experimented upon rabbits, using formaline 1 to 5,000. One injected in the capsule of Tenon recovered; one with injection into vitreous went straight to destruction. In order to secure a very virulent growth of the streptococci they passed it through a second growth. With injections of this growth the eyes went to rapid destruction. He thought if any light could be thrown upon the subject it was greatly to be commended.

Dr. A. B. Hale, Chicago, thought the use of the cautery with the introduction of the iodoform would be contraindicated, as it would not tend to the preservation of the eyeball. He was not convinced that much had been accomplished practically when the eyeball had been saved but without vision. It was a successful surgical procedure, but of little benefit to the patient.

Ocular Complications of Bright's Disease.—Dr. Louis Stricker, Cincinnati.—Dr. Stricker thought the eyes became involved as a result of the general systemic conditions of Bright's Disease, which conditions were the result of faulty kidney excretion, leading to retention of urea and other excrementitious substances in the blood, which substances are either poisons or lead to the formation of toxins, producing degenerative changes in the vessels. In the eye it was the vascular system, the chorioidal and retinal vessels and its nervous expansion, the optic nerve and retina most frequently involved. The hemorrhages were due to the combined influence of arterial degeneration and increased arterial pressure. Of sixteen cases, five were optic neuritis; three neuro-retinitis; two neuro-retinitis hemorrhagica; two of neuro-retinitis and chorioiditis; one venous thrombosis; two uremic amaurosis; one keratitis, in all probability a general uveitis. The writer concludes that the ocular complications of Bright's should lead to systemic examination; that the idea that

one must find the characteristic picture is a mistake; only a small percentage of cases develop ocular symptoms, but if larger number of cases were examined more would be found to have ocular lesions; the complications are the result of altered nutrition, or toxemia, and chronic uremia; that disease of the eye coming on in the course of Bright's is of the gravest import; in acute Bright's the condition is of a more hopeful character; estimate of the urea quantity is the barometer; in the Bright's of pregnancy with ocular complications a low urea quantity should be the sign for immediate interference; that excrementitious substances retained are responsible for the inflammatory changes.

Albuminuric Retinitis and Decapsulation of the Kidney.—Dr. Geo. F. Suker, Chicago.—The object of the paper was to elicit the interest of the members in determining whether or not decapsulation could be accepted as a curative measure for the intra-ocular complications. The conclusions to be drawn from the operations were not encouraging. The death rate for nephritis with fundus complications is very high. The writer concludes that the operation so far offers no hope in cases of bilateral interstitial nephritis with retinal complications; that any improvement in the eye ground is temporary; that the operation may be of service in unilateral nephritis with fundus lesions; that the mortality rate for albuminuric retinitis has not been lessened by the operation; the retinal complications are an index to the severity of the kidney involvement; in nearly all cases of chronic nephritis cardiac involvement is present; as yet the medical treatment yields as good results as the operative.

Discussion.—Dr. Henry Bruns, New Orleans, agreed with Dr. Stricker that the proportion of urea excreted is of greater significance than the presence of albumin. He thought the general practitioner somewhat slow in recognizing this fact and making use of it. That whether the urea is the offending agent or not we can not say positively, but when there is a lessened excretion of this element the patient suffers.

Dr. Greenwood, Boston, thought the cases should be considered from the standpoint of arterial degeneration rather than from the standpoint of kidney disease.

Dr. L. Connor, Detroit.—It was interesting that in the most specialized branch of the profession we should have papers essentially discussing general disease; that it was significant of the progress of the times. He referred to the importance of considering the personal

equation of the patients themselves. What these toxic products are had not as yet been worked out.

Dr. Edward Jackson, Denver.—There could be no question of agreement with Dr. Stricker that albumin is not the factor, but that defective elimination of urea is much more important. The ocular lesions depended upon the condition of the general vascular system. He had never seen a typical case without involvement of the vessels generally.

Dr. G. E. de Schweinitz, Philadelphia, believed there were two varieties: one depending upon toxic influences, whatever they may be; and the other not a complication of nephritis, but of degeneration of the vascular system. There were types, however, of retinal lesions associated with diffuse nephritis when the vessels throughout the general system were not yet in a state of degeneration.

Dr. Griffin, Ann Arbor, reported a case occurring in a patient whose only symptom was reduced vision and who died in six months after the examination.

The Physiology of the Sympathetic in Relation to the Eye.—Dr. Geo. E. de Schweinitz, Philadelphia.—The paper gave a brief resume of the general anatomy and physiology of the sympathetic; its distribution in the eye; to the iris and ciliary body; to the eyelids and to Muller's muscle. He considered its relation to the lachrymal secretion; its influence on the movements of the iris, with special reference to the mydriatic tract of the pupil and also a consideration of the ciliary-spinal center. He considered the nature of the ciliary ganglion, with special reference to its relation to the sympathetic system and of the effects on the eye of lesions of this ganglion; the relation of the sympathetic to the mechanism of accommodation; the relation to intra-ocular tension; the ocular phenomena which follow galvanism of the sympathetic in the neck. He referred at length to the experimental exophthalmos and enophthalmos and "ptosis sympathetica" and the ocular phenomena which follow injury to the sympathetic in the neck, section of the sympathetic cords or extirpation of the cervical ganglia; the effects of drugs and toxic agents. He said that although lachrymal secretion may be caused by excision of the sympathetic, or removal of the ganglion, the sympathetic itself should not be considered the nerve of secretion for the lachrymal gland. He also spoke of the effects of drugs and toxic agents and concluded with remarks on the relation to the eye deduced from operations on the sympathetic cord in the neck or its ganglia in glaucoma, epilepsy, and exophthalmic goitre.

The Influence of Resection of the Superior Ganglion of the Cervical Sympathetic in Glaucoma.—Dr. Wm. H. Wilder, Chicago.—Dr. Wilder reviewed the history of the operation and reported cases of sympathectomy in various forms of glaucoma and considered its immediate and ultimate effect on vision, tension of the eye, pupil, visual fields, etc. He considered also the accidents and complications as a result of the operation and referred to the experiences of various ophthalmologists and their impressions of its utility in glaucoma. He concluded that the operation is not one to be considered of unusual danger and it should show a trifling mortality; that it was not an operation to be condemned too hastily; that it should be given an early trial where it is applicable; that the simple glaucoma chronica is the one most suited and next the hemorrhagic form.

Influence of Resection of the Cervical Sympathetic in Optic Nerve Atrophy, Hydrophthalmos and Exophthalmic Goitre.—Dr. James Moores Ball, St. Louis.—The writer detailed the history of sympathetomy for optic nerve atrophy, reporting his own cases with the method. Few cases of hydrophthalmos had been treated by operation on the cervical sympathetic and the method seemed valueless. He considered excision of the cervical sympathetic was worthy of trial in those cases of simple atrophy which resist measures less heroic. It was impossible as yet to say whether or not bilateral operation was advisable in unilateral atrophy. The value of the method in hydrophthalmos has not been demonstrated. In exophthalmic goitre excision of the ganglion is followed by a larger percentage of cures than is any other proceeding.

Pathology of the Cervical Sympathetic.—Dr. Jno. E. Weeks, New York.—The essayist considered the appearance of the normal ganglia as compared with the appearance of the ganglia removed in cases of glaucoma. In the latter there was excess of pigment in the ganglion cells; the cells were not round, and even appeared shrunken; there were excentric nuclei, with occasionally only the nucleolus visible; the cells were at times vacuolated and there were "mast" cells; evidences of degeneration. The author further referred to the methods employed in the examination of the tissue.

Discussion.—Dr. Melville Black, Denver, believed that it could be concluded, from the statistics presented, that the operation was one of value. The operation, however, should not be tried as a last resort, but a first one, in the proper cases. He had some doubts as to the permanency of the results.

Dr. Freeman, Denver, said that one of the surgeons of that city

had operated on ten cases, removing both the superior and middle ganglia, with no undesirable results following the proceeding, with the exception that sometimes a neuralgia resulted. He considered the operation one of value.

Dr. G. C. Savage, Nashville, believed that the sympathetic nervous system is the power that nature has given for the correction of astigmatism. This power to correct a portion of the astigmatism, which certainly existed in every eye, was not in Muller's muscle, nor in the third nerve, but in the sympathetic system.

Dr. Geo. F. Suker, Chicago, thought the consideration of the physiology of the sympathetic system in relation to glaucoma exceedingly interesting; the exact physiological tract of the fibers was not yet known; if you excised the ciliary ganglia as well as the superior there would still be some sympathetic reaction, from the rami communicantes coming down through the fifth nerve. There might be restitution through the crossing of the fibers, which might explain why some of the action is restored. From being very enthusiastic some years ago he had become quite conservative.

Dr. Edward Jackson, Denver, thought we were not yet in a position to speak definitely as to the utility of the operation in glaucoma. He thought, with Dr. Black, that excision did most in the cases favorably influenced by eserine; it will do good in cases that would be benefited by iridectomy. It was of value in cases where one eye had been lost and it was difficult to get a patient's consent to operation upon the other eye. Where the patient will not submit to iridectomy though indicated, sympathectomy may be expected to be useful.

Dr. de Schweinitz, Philadelphia, said it had been impossible to read in detail the experiments upon which his conclusions had been based; he had not attempted to go into the question of the pupil-dilating fibers which do not run in the sympathetic; a great many of these fibers do not run in the sympathetic at all, but in the trigeminal. He believed, with Dr. Suker, that it would not be right to excise the middle ganglia. He did not believe it was those cases in which eserine did good that the operation was of most value, because eserine does good where the filtration angle is closed, while sympathectomy has done good in the cases where there has been doubt as to whether the angle was blocked.

Dr. Wilder, Chicago, said the ganglia excised did not show any increase in connective tissue, but increase in the adventitious tissue could be seen in the coats of the vessels. He thought there

was doubt sometimes as to whether we should resort to sympathectomy first or iridectomy first in the cases of simple glaucoma; he was skeptical of the value of iridectomy in true simple glaucoma, where the anterior chamber was of normal depth; and it was in such cases that sympathectomy did good.

Dr. Ball, St. Louis, said that in the examinations made of the ganglia excised for exophthalmic goitre the same pathological changes had been found.

Retinal Disease Limited to the Region of the Macula Lutea.—Dr. Henry Gradle, Chicago.—This paper gave a description of various types of retinal disease sharply limited to the region of the fovea or that adjoining it. The reduced central vision corresponded to a well defined, but easily overlooked, lesion. The paper included the report of five cases.

Discussion.—Dr. W. L. Dayton, Lincoln, Neb., said the first two or three cases simulated the changes that might occur in senilia; that such changes did occur in the pigment and nervous epithelium of the retina in senile cases. The condition should also be carefully studied in reference to traumatism. Such changes might also be seen as the result of the electric light.

Dr. L. Connor, Detroit, had observed a somewhat similar case in a physician of forty.

Dr. Hawley, Chicago, was reminded of three cases of a similar nature, which he reported, and referred to the influence of auto-intoxication from the intestinal tract as a factor in the trouble.

Dr. Casey Wood, Chicago, chairman of the committee on Pathological Exhibit, made a few remarks on the *various methods of preparing and preserving ophthalmic specimens for the museum*, saying in part, that back in the seventies these preparations were preserved almost entirely in alcohol, which so contracted it that the proper relations of the parts were destroyed. Later it became the custom to make celloidon preparations. Then Priestly Smith, of Birmingham, had introduced the method of putting them up in gelatin. To this method there was the objection made by the pathologists that no sections could then be made. He considered the gelatin method, if one used great care, the best for the large specimens. Fluids, generally formalin, were used where one desired to be able to take sections. The most beautiful method of preserving the specimen in fluid was that of Greef, where in a formalin solution the specimen is adherent to the jar. Dr. E. V. L. Brown, pathologist of Illinois Eye and Ear Infirmary, had contributed a large num-

ber of specimens after the Greef method, and had also made small photographs of the specimens which were attached to the jars.

Skiascopy as a Method of Precision.—Dr. Edw. Jackson, Denver.—The writer said the first step toward rendering skiascopy a method of precision was shortening the distance between the patient and the examiner. He deprecated the method of practicing skiascopy at a distance of a meter; it could not be exact; the correctness of measurements made at that distance could not be relied upon. He advocated working at a quarter of a meter and for this distance the source of light must be reduced to 2.5 mm. or less; there must also be a reduction in the size of the sight hole, which should not be more than one-half the diameter of the source of light. The correctness of measurements made at this distance depended upon precision and exactness in instruments and methods. Exact skiascopy meant working at a distance of a quarter or a half meter; the accurate measurement of that distance; the adoption of the source of light and the sight hole to the distance; and, care to bring the source of light close to the conjugate focus of the retina.

Discussion.—Dr. Griffin, Ann Arbor, considered that subjective tests were very unreliable and there was great necessity for some exact method that we might not have to depend upon the patient's judgment. The method should be followed in all its details in order to get the desired results. He was somewhat surprised at Dr. Jackson's view that accurate results could not be obtained at one meter, and believed himself that at that distance one could diagnose within a quarter or even an eighth diopter.

Dr. Gifford, Omaha, thought we should speak of the visual area, and not "zone."

Dr. Wilder, Chicago, thought that while the method was very exact it was in most cases an unnecessary refinement. He felt satisfied when within a quarter diopter of the actual truth; it was close enough for practical purposes. He thought it increased the difficulties without proportionately increasing the good results obtained.

Dr. Hawley, Chicago, considered the method very scientific, but hardly necessary for practical work. Most ophthalmologists used a distance of one meter. He spoke of the necessity for the examiner to correct his own error of refraction, especially if presbyopic.

Some Points in the Pathology of Neoplasms of the Conjunctiva, Illustrated by the Present Exhibit of Morbid Growths.—Dr. Edw. A. Shumway, Philadelphia.—The author gave a resume of our knowledge of tumors of the conjunctiva and exhibited stereopticon illus-

trations showing the various growths which are found on this membrane. He considered the growths on the conjunctiva of great interest pathologically because of their great variety, although they were, relatively speaking, infrequent. He showed illustrations of carcinoma, sarcoma, and of the benign growths, specimens of dermoid tumor, lipoma, cystoma, lymphangioma, telangiectasis, fibroma, granuloma, papiloma, adenoma, hæmangioma, etc.

Dr. Casey A. Wood, Chicago, gave a lantern exhibition and talk, showing the comparative appearance of the fundi of various of the lower animals, including the bat, duck, skunk, snake, chimpanzee, Nubian negro, rabbit, sheep, goat, etc. He called attention to the close resemblance of the fundus of the chimpanzee and the Nubian.

The Bacteria Concerned in the Production of Eye Inflammations.—Dr. Robert L. Randolph, Baltimore.—Dr. Randolph spoke of the occurrence, cultural properties and morphology of the bacteria concerned in the production of the eye inflammations, illustrating his talk with lantern slides. He said, among other things, that we had not yet found any bacteria that were pathogenic only for the eye. That the possibility of their being such bacteria was suggested by such diseases as sympathetic ophthalmia, and trachoma. He was sometimes tempted to think that the bacteria so often found in the normal conjunctival sac performed important functions in the life of the normal conjunctiva and should not be destroyed. He thought that with increasing knowledge of the subject we would be compelled to take a different position and perhaps to regard some of the bacteria, at least, as benefactors.

Bacteria in the Conjunctiva, Cornea, Iris, Ciliary Body and Chorioid, and Changes Caused Thereby (illustrated by projection with a lantern of sections and lantern slides).—Dr. Brown Pusey, Chicago.—This was a lantern lecture in which many sections were shown and the interesting and instructive features pointed out; especially, pertaining to the bacteriology of the conjunctiva, cornea, iris, ciliary body and chorioid, and the pathological changes resulting from the invasion of bacteria. He also showed specimens of the Weeks' bacillus, diphtheria bacillus, gonococcus, streptococcus; typical bacilli in the tissues. The author said we were handicapped by the fact that many of the organisms that produce conjunctivitis in man do not lend themselves to experimentation in animals; such being the case with the Weeks' bacillus and that of Morax-Axenfeld.

The Essentials and Unessentials of Ophthalmic Asepsis.—Dr. Harold Gifford, Omaha.—This paper briefly discussed the bacteriology

of the conjunctiva, edges of the lids and eye lashes and gave the results of experiments in disinfecting the same. The writer thought a certain share of the precautions taken by the general surgeon could be dispensed with for the ophthalmic operator. The preparation of the conjunctiva should be conspicuous for its simplicity: simple irrigation with sterilized normal salt solution or boracic acid solution. He deprecated the use of the preparatory bandage, as increasing the number of germs in the normal sac. The best application was one of the shields composed of an arch of some firm material. Instruments should be boiled 8 to 10 minutes in a closed vessel; the collaria should be sterilized at each operation. He thought that for the oculist no preparation of the hands beyond a good scrubbing with sterile soap and water and careful drying on a sterile towel was necessary.

Discussion.—Dr. Casey Wood, Chicago, advocated the method of tying off the canaliculi by simple suture in cases of infective dacryocystitis where the eyeball was to be opened, filling up the sac and canaliculi with argyrol prior to tying the suture.

Dr. Dudley, Easton, called attention to the great value of making bacteriological examinations of the conjunctival secretion as a routine practice in the office.

Dr. Pfingst, Louisville, thought the ophthalmic surgeon should prepare for operation just as the general surgeon. He did not believe that boiling the instruments dulled the edges as much as was generally supposed; it was the operation that dulled them.

Dr. Baker, Cleveland, said it had been his custom for a long time to place his instruments in boiling water; he did not boil his knife long and while waiting wiped the knife with bits of sterile cotton held in the forceps in the boiling water.

Dr. Ellett, Memphis, referred to a method he had recently used to prevent infection in a cataract extraction, where there was an incurable conjunctivitis. Previous to the extraction he incised the conjunctiva and dissected it up from the eyeball all around the cornea: he then picked up the edges of the conjunctiva and bringing them up over the cornea, sutured them there, after having extracted the lens. The sutures were removed on the fourth day, when the corneal wound was healed and the conjunctiva slipped back to its natural position. Patient got vision of 20/30 without needling operation.

Dr. Parker, Detroit, had operated on one case after the method employed by Dr. Ellett with good result and vision of 20/40.

Dr. Claiborne, New York, called attention to the fact that the health and vitality of the patient had a great deal to do with the

matter of healing of the corneal wound, citing a case of non-closure for a long time, although there was no infection.

Dr. Gifford, Omaha, said that a number of years ago de Wecker had recommended the covering in of the corneal wound in these cases with membrane and the use of a flap from above had been recommended. For several years he had been using the flap method.

Development of the Fusion Center in the Treatment of Strabismus.—Dr. Nelson M. Black, Milwaukee.—The writer designated the fusion center as the dominant center of the visual apparatus and said that from it must emanate all the impulses to the various subsidiary centers for all changes in the accommodation, position of the visual axes and position of the head and body that are required to bring corresponding retinal points into focus. Any disturbance or condition of non-development of this center is the cause of those heterophorias or heterotropias not due to abnormalities in the anatomic relation of the orbit and extrinsic muscles or their paralyses. He considered the various causes of the non-development of this fusion center. The method of developing its function with the amblyscope during the existence of strabismus. He considered that if treatment did not result in parallelism of the visual axes and operation had to be resorted to the fusion center, being in a developed condition, could better proceed with its function as soon as the visual axes were made parallel.

A Set of Charts for Stereoscope to Be Used for an Amblyopic Eye or for Treatment of Squint.—Dr. A. B. Hale, Chicago.

Discussion.—Dr. Savage, Nashville, did not believe in the existence of a fusion center, but in volitional centers controlling the recti and oblique muscles, and basil, or reflex centers, all being under the control of the fusion faculty.

Dr. Casey Wood, Chicago, said that binocular single vision is a thing that every child has to acquire; he doesn't possess it at birth. He strongly advocated the use of the Worth instrument for exercising the children. He used practically only three pictures, one of which was the bird and cage, which the child would always recognize. The child should be exercised three or four times a day with the stereoscope at home and at least three times a week in the office.

Dr. Jackson, Denver, called attention to the advantages of the fusion tubes suggested by Priestly Smith, and thought the child would be easily induced to keep up the use of that instrument, more so than with the pictures.

Dr. Stevenson, Akron, had found the Worth instrument of great

service in the cases of squint. He thought the term "fusion faculty" preferable to that of "fusion center" and that it was the principle factor in binocular vision.

Cramp of the Ciliary Muscle due to Eye-strain.—Dr. J. W. Wright, Columbus, O.—The author referred to cramp in other parts, as in the fingers and hands of telegraphers, pianists, typewriters, etc., due to prolonged contraction of certain muscles, and said that similar conditions occurred in the muscles of accommodation; that it occurred in emmetropia as well as in refractive errors. He spoke of the frequency of this cramp and considered that the etiology was particularly enforced near work; ametropia, especially hypermetropia and astigmatism. He referred to the differential diagnosis between this cramp and hypertrophy of the ciliary muscle. As to treatment he thought that cycloplegics were of only transient value and should be supplemented by internal treatment. The writer had found gelsemium of considerable value in these cases.

Discussion.—Dr. Jackson, Denver, said, as to treatment, that the important consideration was the discovery and removal of the cause, which was generally uncorrected ametropia, or some over-use of the eye. Where that had been thoroughly attended to the condition generally cleared up very quickly.

Dr. J. A. Donovan, Butte, Mont., had found homatropin more or less unreliable in the treatment of these cases and preferred the use of the hydrobromate of hyocine.

Dr. Ryan, Galesburg, said that as Dr. Wright had made the statement that he was never able to get relaxation of the spasm by the use of the gelsemium alone he thought that would militate against its employment.

Some Observations on the Eye Complications of Smallpox During the Recent Epidemic in Cleveland.—Dr. A. R. Baker, Cleveland, O.—Dr. Baker exhibited a chart showing the character of the complications and referred to a number of cases in which loss of the eye resulted. The total number of cases occurring was 1,248, with 224 deaths, 17.9 per cent. The writer referred to the fact that one-third of all the cases of blindness in Europe, before Jenner introduced vaccination, were due to smallpox. The infection is carried into the eyes from the skin. The eye complications were greatly to be feared. As to treatment, no specific treatment had been found. Frequent washing of the eyes and the use of such antiseptics as were not harmful were indicated.

Discussion.—Dr. John Fulton, St. Paul, referred to the epidemic

in St. Paul, in which the eye complications were of a similar character to those reported by Dr. Baker, though, perhaps, not so acute. He thought it quite possible that it was the same eruption as that occurring on the skin.

Dr. Connor, Detroit, referred to the evil results that had followed the attempts to stamp out the disease by methods of disinfecting and ordinary cleanliness, without vaccination; a great trouble was that so many people of more than ordinary intelligence could not be made to see that they were not capable of judging concerning matter about which they had never studied. He thought that facts such as those brought out by the paper of Dr. Baker were great aids in making the people understand the necessity for vaccination.

Dr. Mann, Texarkana, had had six cases of corneal ulcer resulting from smallpox, in two of the cases the eyes being lost; treatment had no effect at all.

Dr. Donovan, Butte.—In an epidemic a few years ago the subject of whether or not the eye complications were the initial lesion was considered and in some cases it was decided that the eruption appeared on the eye at the same time as on the skin.

Dr. Miller, Los Angeles, thought the paper of Dr. Baker, presenting such interesting statistics would greatly aid in enabling physicians to bring the laity to a realization of the horrors of smallpox and the value of vaccination.

Dr. Morrow, Canton, referred to a case occurring in his practice where the corneal complication was undoubtedly the inoculation lesion; the patient had slept two weeks before with a cousin supposed to have chicken pox, but who had smallpox; seven days before the eruption he had the corneal lesion, showing itself first as a small distinct white spot.

Dr. Thompson, Indianapolis, had seen a number of eye complications in their recent epidemic; in the confluent form he had ten cases of corneal ulcer and lost four

Dr. Greenwood, Los Angeles, thought it reasonable to expect that Councilman's discovery would lead to its treatment by a serum and that it would be controlled as diphtheritic conjunctivitis had been.

Dr. Hilsher, Spokane, had had cases in which there appeared a conjunctivitis before the eruption came on, resembling a phlyctenular conjunctivitis.

Dr. Weeks, New York, thought the determination of the percentage of eye affections occurring in smallpox was of great inter-

est. It was also of interest to know that sometimes the eye was affected primarily, as he had supposed that in all cases the eye affection was a secondary one, due to the entrance of substances from the lids and brows together with an abrasion of the corneal epithelium. He thought the use of oily substances would help prevent the introduction of infection into the eyes.

Skin Grafting on the Eye Lids.—Dr. Oscar Dodd, Chicago.—The writer referred to the surgical principles involved and the conditions requiring the operation—as cicatrices, tumors, etc. He considered the objects to be obtained and the kind of grafts best suited to obtain good results. The advantages of the pedicle graft were the source of nourishment afforded and the firmness, but they were too heavy for the upper lid. The Wolfe grafts were uncertain in results, due to shrinking. The writer concluded that for the upper lid Thiersch grafts should always be used. That where there is dense cicatricial tissue the pedicle graft is most satisfactory. Should pedicle grafts not be available in such instances then the Thiersch graft could be used.

Entropion and the Operations Employed for its Relief.—Dr. John O. McReynolds, Dallas, Texas.—This paper discussed the nature of entropion, its causation and pathology, and gave a brief review of the various operations employed, with a modification of the principle ones.

Discussion.—Dr. Wilder, Chicago, concurred with Dr. Dodd as to his conclusions—that where you could get a pedicle graft there was better nourishment—and where there was a contracting scar the Thiersch grafts would shrink. As in the operation for entropion, there was no one operation that would meet all cases; a combination must be made.

Dr. Hawley, Chicago, preferred the use of the Thiersch graft whenever possible.

Dr. Todd, Minneapolis, referred to the importance of removing the muscular tissue from the under as well as the upper surface of the tarsal cartilage. He referred to the instrument introduced some time ago by Dr. Wilder for removing grafts from behind the ear or the palm of the hand. For controlling the hemorrhage he now used adrenalin with gratifying results.

Dr. Miller, Los Angeles, had also used adrenalin, but thought there was danger of secondary hemorrhage following its use. He sometimes had an assistant compress the temporal artery for this purpose.

Traumatic Lesions of the Ocular Adnexa, with Report of a Case of Contused Wound of the Eyebrow Resulting in Complete Monocular Blindness Unaccompanied by Ophthalmic Changes.—Dr. Ellet O. Sisson, Keokuk, Ia.—The author illustrated a number of cases of traumatic lesions of the eyebrows, orbital walls and soft parts. Wounds of the ciliary region were frequent. He considered the results of injury to the supraorbital nerves. Direct fracture of the superior wall of the orbit was liable to involve the optic nerve. One case was a severe cut over the eyebrow followed by total loss of vision, but within one month vision returned until the patient could see large objects about the room. There had been indirect fracture of the optical canal, resulting in injury to the optic nerve, followed by retrobulbar neuritis. Another case illustrated the result of injury to the soft parts and was rare in that there was either rupture of an ocular muscle, detachment of its tendon from its insertion into the sclera or an injury to a motor nerve, complicated with an injury to the terminal branches of the superior maxillary nerve with loss of sensation of the parts supplied. The writer referred to the necessity for a guarded prognosis in all cases; the value of asepsis and antisepsis in the treatment of all wounds located in this region.

Report of a Case of Complete Absence of Both Eyeballs at Birth.—Dr. Lawrence R. Ryan, Galesburg, Ill.—This was the report of a very unusual and remarkable case. Parents apparently healthy. Father aged fifty and mother thirty-five. Parents were first cousins. The writer considered that consanguinity might be an important factor in the causation. Aside from deformities the child was normal. The brain was unusually well developed, and up to the time of death, which occurred at three years, showed the ordinary progression of childhood.

Discussion.—Dr. Wood, Chicago, thought that there was really no such thing as true anophthalmos: the term was not a proper one; because if the case is thoroughly worked out some trace of the eyeball is found.

Dr. Ball, St. Louis, had reported a case occurring in a child that lived six months; lachrymal glands were large and secretion existed. The whole subject had been worked out by Von Hippel, who had collected data in something like eighty or ninety cases.

Dr. Claiborne, New York, had reported a case in New London two years ago of total anophthalmos. He thought Dr. Wood correct about the wrong use of the word "anophthalmos," but considered that we must have some term to express the condition.

Dr. Ayers, Cincinnati, had seen a few years ago a case of so-called total anophthalmos, in the line between the lids there being nothing visible but smooth mucous membrane, as though an enucleation had been done.

Exhibition of New Instruments.

Dr. Posey exhibited an apparatus devised for convenience in carrying bottles of collyria and for preparing compresses of heat or cold.

Dr. Suker exhibited an instrument to facilitate the demonstration of the fundus of the eye to students, so that three students at one time could observe the fundus.

Dr. Todd exhibited a tendon tucker which consisted in an improvement over the one presented by him last year.

Extraction of the Crystalline Lens in High Myopia.—Dr. H. V. Wurdemann and Nelson M. Black, Milwaukee, Wis.—The authors gave statistics of measurements of over 12,000 pair of lens and 8,021 eyes in which complete examination under cycloplegic was made, including 34 cases of high myopia. They considered the benefits derived from correction of full refraction in moderate and high myopia, generally full correction for distance and weaker concaves for near, in combination with full astigmatic correction. Where indicated prisms or operations on ocular muscles were resorted to. Six eyes operated on for high myopia were selected from the few cases in which correction of the refraction could not be tolerated and who were thereby incapacitated for the ordinary duties. All the operations were successful, patients receiving marked benefit and being able to pursue their vocations. The writers concluded that surgical treatment should be limited to cases over 12, OD, who suffer from inconvenience from correcting lenses. Ideal cases for operating were —17.0 to —18, OD. The operation was mainly indicated in young adults. Cases having active disease and changes in ocular structures, such as progressive myopia, chorioiditis, fluid vitreous, or detachment of the retina are not applicable. Dangers of operative interference was more than counterbalanced by results achieved; that is, increase of visual acuity, extent of visual field, etc.

The Management of Myopia.—Dr. J. H. Claiborne, New York.—The author's present views were based upon the paper of Förster. He approved as a rule (always under the age of presbyopia) total correction. Exceptions were rare, generally occurring in cases complicated by organic changes at the post pole. He thought that careful records should be kept so that the weight of voluminous statistics

may be brought forward as evidence. He referred to the rarity of myopic errors in this country as compared with hyperopic ones and considered the advisability of carefully examining the eyes of all children at regular periods, particularly at the age when myopia is apt to arise. He advocated the use of the student lamp and considered the Welsbach too white a light. There should be regular inspection of the schools and proper arrangement of the school room illumination. Desks should be so arranged that the children would not be induced to bend over. All myopia under the age of presbyopia was vicious and should be handled with much care. After presbyopia myopia had a tendency to decline rather than increase. The author favored total correction of myopia and varied from that practice only under exceptional conditions.

Discussion.—Dr. Jackson, Denver, thought that no hard and fast rule could be laid down as to whether cases were suitable for operation or not. Cases should be repeatedly seen and studied. He had found lenses of 18 and 20 per cent worn with comfort for years. The contraindications for operation could not be stated very definitely either. He emphasized the necessity for making a moderate discission; while it might entail waiting, it was much safer. If there is necessity for removing the lense as soon as possible it would be better to remove it without any discission.

Dr. Hale, Chicago, had had ten cases upon which he had operated and which had not been reported yet, in which the results had been very good.

Dr. Bruns, New Orleans, in 2,500 cases of refraction had operated seven times for the removal of the lens in myopia. He considered the great value to be the prophylactic one. He agreed with what had been said about the moderateness of the decision and considered that it held true of all decisions. A small discission should be made and then wait until the result is seen—until it is known how the eye tolerates it.

Dr. Fulton, St. Paul, had been so pleased with the results of discission that he did not see why linear extraction should be done.

Dr. Moulton, referred to the necessity of securing the co-operation of the parents in these cases of myopia, to have them provide the children with suitable conveniences for study.

Dr. Dodd, Chicago, had for the past few years given full correction in his myopic cases and found that they were much more comfortable and that the condition remained stationary, while in those not fully corrected the changes were much greater.

Dr. de Schweinitz, Philadelphia, desired to go on record, as he had often done before, as advocating full correction for these cases. He agreed with Dr. Jackson fully that full correction is the object to be attained for young persons with normal visual acuity and binocular near vision, no matter how high their myopia.

Calcareous Degeneration of Corneal Cicatrices.—Dr. H. Moulton, Ft. Smith, Ark.—The author considered certain rare types in which lime salts are deposited in old cicatrices in the form of plates or solid masses of considerable size. Two cases were related of adherent leucomata in which deposits were deeply situated and in which the symptoms were neuralgic and asthenopic respectively, and not such as a foreign body would usually excite. Perfecting and lasting relief was obtained by cutting into the cicatrices and removing the deposits.

The Voluntary and Involuntary Brain Centers Controlling the Ocular Muscles.—Dr. G. C. Savage, Nashville, Tenn.—The essayist considered that the nine volitional centers were each connected with two muscles, one muscle belonging to each of two eyes. That five of these centers control the recti and four obliques. A discharge of nerve impulse (neuricity) for a voliti center is equally divided between the two muscles under its control. If the tonicity of the one muscle equaled the tonicity of the other there would be an even, equal response on the part of both; but if unequal in tonicity, the basil center of the weaker muscle acts in order to produce harmony in movement. There were twelve basil, or reflex centers, each one of which is connected with one muscle only. That all these were under the control of the fusion faculty and were in no sense volitional. They discharged neuricity only under abnormal conditions, and only in the interest of binocular, single vision. These centers became exhausted in heteraphoria and excite the sympathy of other brain centers. Cure of heteraphoria brought rest to these reflex centers and relieved the symptoms caused by their excitation.

WILLS' HOSPITAL OPHTHALMIC SOCIETY.

A meeting of the Wills' Hospital Ophthalmic Society was held at the hospital on the 9th of March, 1903.

Dr. McCluney Radcliffe presented the history of a *case of sympathetic ophthalmitis from traumatism* in a twenty-six year old man in which the condition began as an optic neuritis. Microscopic examination of the enucleated irritating eye by Dr. Harold G. Goldberg.

the pathologist to the hospital, showed small round cell infiltration of all of the interior structures of the eyeball in association with dislocation of the lens and bands of lymph causing traction on the iris and the ciliary body.

Dr. Charles A. Oliver presented the history and showed a case in which eight years previously he had successfully removed a piece of steel from an iris with a magnet introduced through the original small wound made at the lower corneal-scleral junction, the iris at this late date remaining uninjured and freely mobile, and the pupil the same size as its fellow; in other words, there were not the least signs of any scar, mark, or disturbance indicative of either the past accidental or purposive traumatisms. Vision was normal.

Dr. Peter N. K. Schwenk mentioned an almost similar instance which had occurred in his practice some sixteen years ago. In his case the lens was also uninjured, and vision had always remained good. Dr. Samuel D. Risley stated that the vitreous body should not be injured during operative procedures in such cases. He preferred to make the puncture at the site of the entrance of the foreign body. He mentioned five cases, in three of which the lens was uninjured and vision became practically normal. In the remaining two the lens was injured. In one of these enucleation by reason of sympathetic irritation was made necessary in five months' time. The last case had not given any trouble. Dr. S. Lewis Ziegler made mention of a recent case of foreign body in the crystalline lens which was removed through the original opening without any reaction by the aid of a Hirschberg magnet—an instrument which, by attachment to a storage battery, he had learned to use some ten years ago. He believes that the giant magnet of Haab would be useful in many such cases.

In a brief discussion upon the value of *subconjunctival injections* Dr. Ziegler said that his experience had been limited largely to their use in detachment of the retina—in two cases of which the effects were rather pronounced. He preferred weak solutions, as one case in which he had used strong ones was followed by an orbital cellulitis, and another just escaped the formation of an abscess. He recalled a case in which vision in a somewhat limited field was temporarily increased from one two-hundredths to two-thirds of normal. Dr. Walter L. Pyle stated that as a result of reviewing the literature upon the subject, he had found that their use, especially in the stronger solutions and in uveal disease, was waning. Dr. Risley said that he never at the present time made use of strong solutions, as whenever

he had employed strong ones he had regretted them. He repeated them at tri-weekly (or even more frequent) intervals; offering in illustration cases of uveitis in young subjects in which the conditions were markedly ameliorated and vision arose to excellent degree of acuity. He had found that the results obtained by them in retinal detachment were never permanent. He had also found good results from their use in abscess of the cornea in which other forms of treatment did not have any apparent effect.

Dr. Arthur J. Bedell, the junior resident surgeon, showed for Dr. Oliver a case of *advancement of the external rectus muscle* in which Dr. Oliver had done his own form of operation; the result being remarkably good.

Dr. Ziegler exhibited a blind case of *recurrent iridocyclitis in which optico-ciliary neurotomy was successfully done for the removal of recurrent attacks of pain*.

Dr. Homer J. Rhoda, the senior resident surgeon, reported a case of *hypopion keratitis from traumatism* for Dr. Oliver. The patient had been struck with a piece of hard coal; the ulcer was central. The condition improved after the daily application of formalin, peroxide of hydrogen and iodoform, but the hypopion recurred some five or six times when the patient was allowed out of bed and when treatment was lessened. Almost immediately, however, upon the single application of the thermocautery the hypopion disappeared, and the eye made a rapid recovery with a resultant permanent vision of one-fourth of normal.

ABSTRACTS OF RECENT OPHTHALMIC LITERATURE.

BY E. A. SHUMWAY, M. D.,
PHILADELPHIA.

Concerning Cocaine.—E. Fuchs (*Wiener klin. Wochenschrift*, xiv., Jahrg., 1902, No. 38) warns against the widespread use of cocaine in the most diverse conditions of the eye, and believes it should be applied only by the physician. Its full anesthetic action is developed only in diseases of the cornea, especially in the superficial lesions which are usually very painful, but it may act very injuriously by means of its well known detachment of the surface epithelium.

By the physician cocaine should be used:

a.—As anesthetic. (1) For operative purposes (instillation of a 5 per cent solution). Where additional effect is required it may be injected beneath the conjunctiva, or adrenalin hydrochlor (1:1000) may be instilled. (2) Often advantageously in photophobia, as in eczematous conjunctivitis.

b.—As a mydriatic. (1) For purpose of investigation. (2) As adjunct to other mydriatics, especially atropine. In place of frequent instillations of atropin-cocaine, which may readily produce toxic symptoms, and not give the desired effect, Fuchs recommends first cocainization as for operation, and then the use of a crystal of atropine in the conjunctival sac. The nasal duct should be closed by drawing the lower lid downward, and pressing over the lachrymal sac.

Intraocular Tuberculosis in Children, and Remarks on the Differential Diagnosis between Tuberculosis and Retinal Tumors.—

Carl Emanuel (*Klinische Monatsbl. f. Augenheilkde*, Oct., 1902) describes three cases of tuberculosis of the eye in children, two of which were diagnosed glioma, while in the third the diagnosis was not positively made. The first was an isolated tubercle of the choroid, which projected forward in the interior of the eye, and caused ectasis of the sclera. The second was an isolated tubercle of the sclera, in the posterior pole, with secondary involvement of the choroid—apparently a unique case. The third involved the choroid, and secondarily the retina, and vitreous. Emanuel discusses the points made by Lagrange for the differential diagnosis between tubercular pseudotumors, and true intra-ocular growths, and finds that they are by no means applicable in every case, and that occasionally errors in diagnosis can not be avoided.

The Treatment of Tuberculosis of the Iris with Tuberculin TR.

—M. Handmann (*Klinische Monatsbl. f. Augenheilk.*, Oct., 1902), following Schieck's experiments, has treated two cases of tuberculosis of the iris by injections of tuberculin TR into the forearm and thigh every other day. The dose was at first very small, 1/1000 mgr. every other day, and was increased gradually during the course of two months to 3 mgr. (at first slow increase in the dose, then quicker (0.001, 0.002, 0.003, etc., up to 0.01, then 0.011, 0.012, 0.013 to 0.02, then 0.03, 0.04 to 0.1, 0.15, finally 2.0 in case 2, and 3.0 mgr. in case 1). Altogether 31 injections were given in each case. At the same time local treatment by hot compresses and atropine instillations was kept up. In the first case, a boy of 11 years, there was no elevation of the temperature, and only after injections of large doses of the tuberculin, was there any local inflammation, which did not, however, go on to abscess formation. In the second case, a girl of 21 years, there was more reaction after the injections, the temperatures occasionally ranging 2° C., above normal. After two weeks very decided improvement appeared in each patient, the characteristic nodules in the iris disappeared, and both were discharged entirely cured, with full vision at the end of two months. Handmann admits that the cases may have been not very virulent forms of tuberculosis, but claims that if the iris tuberculosis is a secondary infection, the methods of treatment should be directed to the general condition, and should not be purely local.

Insufflation of Air into the Anterior Chamber, a New Method for the Treatment of Tuberculosis of the Iris and Cornea.—C. H.

Felix (*Zeitschrift f. Augenheilk.*, Nov. & Dec., 1902) reports two cases of tuberculosis of the iris, and one of tuberculosis of the cornea, in which the process was arrested by means of insufflation of air into the anterior chamber, a treatment based upon the good results obtained in tubercular peritonitis, by operative interference. Detailed clinical histories are given, and the method is described as follows: After the usual cleansing of the field of operation and anesthetization of the surface by instillation of cocaine, an ordinary discission needle is passed through the cornea into the anterior chamber, and then cautiously withdrawn. Through this opening the canula of a Pravaz syringe is entered, after the syringe has been half filled with sterile air (drawn in through a piece of sterilized cotton). The aqueous is then drawn slowly into the syringe, the piston being held on a lower level than the anterior chamber. As soon as the chamber is entirely empty the air is forced in, without withdrawing the canula, care

being taken to avoid increasing the intra-ocular pressure beyond the normal. The eye is then bandaged. These insufflations of air were repeated about once a week for from three to twelve weeks. No untoward reaction was observed and the air was usually absorbed and replaced by aqueous in a few days. Felix believes that the results are not to be ascribed to the mere paracentesis and removal of the aqueous, but to the action of one of the constituents of the air—probably the carbonic acid—upon the tubercular tissue.

The Normal Size of the Pupil According to Measurement Made in the Clinic.—As the result of examinations of the pupils in 1,000 patients of different age, sex and refractive conditions. Tange (*Archiv. f. Augenheilk.*, Oct., 1902), reaches the following conclusions:

1. The size of the pupil varies greatly.
2. Women have wider pupils than men.
3. The "physiological size of the pupil" decreases with age.
4. The pupil is narrower in hypermetropia than in myopia.
5. It decreases with the degree of hypermetropia.
6. It is wider in myopes up to the twentieth year, than in emmetiopes.
7. In increasing age, the differences between the "physiological width" in various refractive conditions are less decided. Beyond the fortieth year, they are unimportant.

8. The color of the iris has no influence on the size of the pupil.

Tange believes that the smaller pupil in hypermetropia is due to the increased normal tone of the sphincter muscle, which results from the more constant use of the effort of accommodation. For the smaller pupil of old age he assumes a greater weakening of the dilator muscle than of the sphincter.

The Diagnosis, Prognosis, and Treatment of Perforating Infected Wounds of the Eye.—O. Schirmer (*Arch. f. Ophthal.*, 53-1, p. 1.), believes that the prognosis of perforating wounds depends less upon the seat of the injury than upon the question whether the wound has been infected or not. In most of the older, and even in the more recent statistical papers on this subject, this classification has not been sufficiently insisted upon. The infected wounds are usually designated as very unfavorable and set aside in a few words as not coming into consideration so far as the practical preservation of sight is concerned. Schirmer, however, has collected his cases occurring in recent years, and comes to the conclusion that the prognosis of infected wounds is not so bad as is usually assumed. He distinguishes three types, which, however, can not always be sharply separated.

I. *Uveitis serosa traumatica*, a very rare, chronic inflammation of the anterior uveal tract, associated with deposits on Descemet's membrane, which, in the few cases described by him several years ago (to which he adds three new ones) have always ended in recovery. Much more important than this is

II. *Uveitis fibrinosa traumatica*, that slow, insidious inflammation, with its bad prognosis, both for the injured eye and for its fellow. It is of very great importance to determine whether the inflammation is confined to the anterior segment of the eye, or whether it is complicated by an abscess of the vitreous. This is often very difficult to determine with certainty. As a view of the media of the eye is impossible, other symptoms must be relied upon. The surest sign of an invisible abscess of the vitreous is a dense, grayish exudate appearing in the anterior chamber, in the first few days, which covers the pupil and iris uniformly, and further, an early sensitiveness of the ciliary body on pressure. The *exact determination of the position and depth of the wound* is also of great value in the differential diagnosis. In all cases complicated with abscess of the vitreous, there was a primary injury of the vitreous body. Secondary propagation of pyogenic organisms from the iris or anterior chamber into the posterior segment of the eyeball appears to be very rare, if it indeed ever occurs.

Uncomplicated fibrinous inflammation runs a much more chronic course, under the picture of a moderately severe exudative iritis, and develops so gradually that several days are required to determine that infection has occurred. The course of the condition, however, does not correspond with these slight symptoms. It is much more frequently malignant, especially if the well known signs of a severe involvement of the ciliary body are present.

III. *Uveitis purulenta traumatica*. In addition to the usual rapidly appearing fibrinous exudate, there is pus in the anterior chamber or vitreous body. Complication with abscess of the vitreous makes the prognosis worse. The diagnosis is determined by the points mentioned under II., but is not always certain. Secondary infection of the vitreous is rare. Cases of panophthalmitis are not included in the statistics given.

The prognosis of infected wounds, which Schermer from his earlier cases, considers very bad, has become much better since he has used large doses of mercury, which he has also used for a long time in sympathetic ophthalmia. Adult male patients receive, wherever possible, inunctions of from 8 to 9 gr. pro die; women 6 to 8 gr.;

children 1 to 3 gr. If success is to be attained, it is absolutely necessary to begin these treatments early, and maintain it for a long time. In order to secure a more rapid effect he recommends also *intramuscular injections of biniodide of mercury* at the same time. Of course the usual treatment with hot applications, atropine, galvanocautery when required, and subconjunctival injections should be carried out.

His statistics are as follows:

Of thirty-nine cases with *uveitis fibrinosa*, vision was lost in only sixteen (of these, about one-half were combined with abscess of the vitreous), while twenty-three patients retained not only the eyeball but more or less sight. Of twenty-one eyes with *uveitis purulenta*, only seven were lost. This makes 60 per cent of recoveries for *uveitis fibrinosa* and 65 per cent of recoveries for *uveitis purulenta*.

NOTES AND NEWS.

ITEMS FOR THIS DEPARTMENT SHOULD BE SENT TO
DR. BROWN PUSEY, 31 WASHINGTON ST., CHICAGO.

Dr. H. V. Wurdeman is in Europe.

Dr. C. R. Holmes, of Cincinnati, is in Europe.

Prof. H. Snellen, of Utrecht, recently celebrated his seventieth birthday.

Dr. G. Haltenhoff has been made professor of Ophthalmology in the University of Geneva.

Dr. John R. Taylor has been elected junior resident surgeon at Wills' Hospital, Philadelphia.

Dr. O. T. Wadsworth has resigned the professorship of Ophthalmology in Harvard University.

Drs. H. E. Peterman and James Bordley, Jr., of Baltimore, Md., are in Europe for the summer.

Dr. S. Ruge has been appointed Privat-docent of Ophthalmology in the University of Greifswald.

The new Schermerhorn pavilion of the New York Eye and Ear infirmary was opened May 11th.

At the New Orleans meeting Dr. G. C. Savage was elected first vice-president of the American Medical Association.

Drs. Frank Todd, of Minneapolis, and F. M. G. Byers, of Montreal, have joined the editorial staff of the RECORD.

Lea Brothers & Co. announce as ready Dr. C. A. Veasey's "A Manual of Diseases of the Eye for Students and General Practitioners."

"Bolletino dell 'ospedale oftalmico della Provincia di Roma," is the name of a new journal published in Rome. The editor is Prof. M. Scellingo.

The new ophthalmological clinic at the University of Bonn has been completed and is soon to be dedicated. It is equipped with all modern improvements.

Dr. Arnold Knapp has been appointed professor of Ophthalmology in Columbia University; Dr. Ward A. Holden, chief of clinic, and Dr. H. H. Tyson, instructor.

The last legislature of Pennsylvania appropriated \$43,000 for the Eye, Ear and Throat Hospital of Pittsburg, and \$50,000 for the Wills Eye Hospital of Philadelphia.

The new officers of the Ophthalmic Section of the American Medical Association are Dr. R. L. Randolph, Baltimore, president; Dr. A. E. Bulson, Fort Wayne, secretary, and Dr. Casey Wood, Chicago, delegate.

Dr. S. Ginsberg's *Grundriss der Pathologischen Histologie des Auges*, which has just appeared, is a book of 487 pages and contains 107 illustrations. It is published by S. Karger, of Berlin, and costs \$3.25. It is an excellent work.

The annual dinner of the editors of the RECORD was held at Antoine's in New Orleans, on May 6th. Drs. Casey Wood, Savage, de Schweinitz, Weeks, Gifford, Allport, Ellett, Black, Randolph, Fulton, Shumway and Pusey were present. The report of Dr. Wood showed that the journal is in a most flourishing condition financially.

At the Washington meeting of the American Ophthalmological Society the following officers were elected for the ensuing year: President, Dr. Charles Stedman Bull, New York; first vice-president, Dr. Arthur Mathewson, Brooklyn; corresponding secretary, Dr. J. S. Prout, Brooklyn; recording secretary and treasurer, Dr. S. B. St. John, Hartford.

The following rule was adopted at the New Orleans A. M. A. meeting: "Any member of the Section on Ophthalmology of the Association who has twice permitted his name to be listed on the program of the Section as intending to read a paper, and has failed to attend the sessions at which these papers were due, and to give satisfactory explanation of his absence, shall be no longer eligible to read a paper before this Section until he has attended at least two consecutive sessions."

Continuing the good work begun in the special ophthalmic number of the *Indian Medical Gazette* (Vol. XXXVI, June, 1901), there is an article in the February and March, 1903, numbers of the same journal by Dr. F. P. Maynard, on an Analysis of One Thousand Consecutive Cataract Extractions, and in the London *Lancet* of May 2nd, 1903, there is An Analysis of a Further Series of 250 Consecutive Operations for Primary Cataract, Performed in the Government Ophthalmic Hospital, Madras, by Dr. R. H. Elliot.

Ophthalmologists living in Chicago and its vicinity will be pleased to learn that the "*Handapparat*," or reference collection of the late Prof. Schöbl, of Prague, will soon be accessible to them. Prof. Coccius, of Leipzig, began this collection over thirty years ago, and when his library was purchased by Schöbl, the latter greatly enlarged its scope, and brought it up to the date of his death. It now numbers over 1,700 monographs, inaugural dissertations, reprints and other minor works on ophthalmic subjects, arranged on the plan followed in Nagel's *Jahresbericht*. It will form a valuable addition to the already extensive library of the purchaser and will enable writers on ophthalmic subjects to consult the originals of many papers, otherwise difficult to procure.

Another recent and important work is Ocular Therapeutics, by Dr. A. Darier, Paris, France. Translated from the second edition by Sidney Stephenson, M. D., C. M., London, England. This monograph, in 1902, received the Desportes prize from the French Academy of Medicine. It describes in a practical manner the author's methods of employing in ophthalmic surgery many of the ordinary therapeutic measures which have proved, after many years' experience at his hands, to be useful. It also brings before the profession the uses of a number of comparatively new remedies. It is a valuable addition to ophthalmic literature and should have a place in the library of every progressive ophthalmologist. The book is well bound and printed with good type. Published by Messrs. J. and A. Churchill, London, England. Price 10s 6d.

At the last meeting of the American Medical Association in New Orleans, the Ophthalmological Section passed a resolution asking that all educational and health boards and state legislatures when possible, recommend the annual examination of school children's eyes and ears by some suitable method. This resolution was endorsed and passed by the house of delegates of the American Medical Asso-

ciation, so that it now comes as an official communication not only from the Ophthalmological Section, but also from the American Medical Association as a whole.

"Whereas, The value of perfect sight and hearing is not fully appreciated by educators, and neglect of the delicate organs of vision and hearing often leads to diseases of these structures; therefore, be it

"Resolved, That it is the sense of the American Medical Association that measures be taken by boards of health, boards of education, and school authorities, and, where possible, legislation be secured, looking to the examination of the eyes and ears of all school children, that disease in its incipency may be discovered and corrected."

The resolutions passed by the house of delegates of the American Medical Association in regard to the annual examination of school children's eyes and ears by some suitable method, have been adopted and recommended at a recent meeting of South Dakota State Medical Society.

The American Academy of Ophthalmology and Oto-Laryngology (formerly the Western Ophthalmological and Oto-Laryngological Association) had a highly successful annual meeting at Indianapolis, on April 9th, 10th and 11th. The following officers were elected:

Edward Jackson, Denver, Colo., president.

Dudley S. Reynolds, Louisville, Ky., 1st vice-president.

John J. Kyle, Indianapolis, Ind., 2nd vice-president.

John W. Murphy, Cincinnati, O., 3rd vice-president.

Otto J. Stein, Chicago, Ill., treasurer.

Derrick T. Vail, Cincinnati, O., secretary.

Council: Adolph Alt, St. Louis, Christian R. Holmes, Cincinnati, Wm. L. Ballenger and Casey Wood, Chicago.

The academy is now national in scope, and will embrace the entire North American continent.

Memorial to the late Prof. Panas. The following circular speaks for itself. The OPHTHALMIC RECORD trusts that a sufficient sum will be raised for the purpose indicated, and that members of the profession in America will subscribe liberally to the fund:

"The colleagues, friends and pupils of Professor Panas have decided to open a subscription for the purpose of perpetuating the memory of their beloved master. The committee intend to have a medal struck and place a monument in the principal hall of the

Ophthalmological Clinic of the Hotel Dieu, where, for twenty-two years, Panas labored so successfully and so assiduously. Subscribers of at least twenty-five francs will receive a copy of the medal. Contributions should be addressed to one of the secretaries, Monsieur Monthus, 41 rue Godot-de-Mauroi, Monsieur Scrini, 51 Avenue Gabriel, Paris, who will have charge of the funds. We trust you will join us in honoring the memory of the man whom French science has so recently lost."

The circular is signed by the honorary presidents: Prof. Brouardel, honorary dean of the (Paris) Medical Faculty; Prof. Debove, dean of the Medical Faculty; Delyane, minister from Greece in Paris; Prof. Jaccoud, permanent secretary, and Lancereaux, president of the Academy of Medicine. President: Prof. Guyon, member of the Institute of France. Among the vice-presidents is Prof. Gayet, of Lyon. Of the members, Drs. Albarran, Barette (of ———), Chevallereau, Corgialequo (London), Daviel (Rouen), Drnault, Professors Fuchs, of Vienna, Hirschberg, of Berlin, and de Laperonne, of Paris. Dr. Menacho, of Barulona, Prof. Pflueger, of Berne, Drs. Phronimos, of Cairo, Rochon-Duvigneaud, Sourville (Hantes), Prof. Tartuferi, of Bologna, Dr. Terrien and Prof. van Duyse, of Ghent.

A unique dinner was given April 14th last by the St. Louis Medical Society to four of their ex-presidents, all of whom were over eighty-six years of age. Dr. Simon Pollak, one of these honored guests, was born in Prague, April 14th, 1814, so that the banquet may have been said to be especially his as it was given on his eighty-ninth birthday. The venerable doctor graduated in 1835 at the University of Vienna, and arrived in the United States in 1837. From 1838 to 1844 he practiced medicine at Nashville, Tenn., where he acquired a competence. He came to St. Louis in 1845, where he has since remained. Immediately he entered upon dispensary work, and in 1852, together with James Yeatman, William G. Eliot and others, he founded the Missouri School for the Blind. By Dr. Pollak's personal efforts this school was financially maintained for five years, when it became a state institution. About 1850 he assisted in founding the St. Louis Academy of Science. In 1860 he started the eye and ear clinic at Mullanphy Hospital, the first in St. Louis, and has looked after it until the present.

During the Civil War he was chosen a member of the American Sanitary Commission, and was on the field after the battle of Bull

Run. When the Western Sanitary Commission was established he became a member and did effective work. He was also appointed a hospital inspector, and was given carte blanche in the purchase and distribution of supplies.

Dr. Pollak is a member of the St. Louis Medical Society, once its president, many times its treasurer. He is also a member of the American Medical Association, of the Missouri State Society and various other organizations.

We congratulate Dr. Pollak on his long and honorable career as a physician and ophthalmologist, and reëcho the motto inscribed on the dinner menu. Such a record is, indeed, "*monumentum aere perennius.*"

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XII. No. 7.

CHICAGO, JULY, 1903.

NEW SERIES.

ORIGINAL ARTICLES.

THE RETINAL IMAGE.

BY CHARLES D. JONES, M. D.

Ophthalmic Clinical Assistant, Massachusetts Charitable Eye and Ear Infirmary; Ophthalmia Surgeon, Malden Hospital, Boston.

(Illustrated)

It may be accepted as a fact that the basis of correct vision is the formation on the retina of a well defined real image; that is, an image in focus. It is probable, also, to be more precise, that the image should be focused on the rods and cones; and as the total thickness of the retina in the region of the macula is about .33 m.m., the discrepancy between the anterior and posterior surfaces of the retina would, expressed in terms of refraction, amount to about one diopetre.

The size of the largest object which can be recognized as sharply defined in all its parts is remarkably small. Various experiments I have made limit it to an object with a visual angle of about one degree, say between forty and sixty minutes; corresponding, approximately, to an object three to four inches in diameter at twenty feet distant; or to only about six millimeters in diameter at one-third of a metre. All the rest of the field is indistinct, and so much so as, considering letters, to be illegible at the ordinary reading distance unless the letters are large. This also means that if every letter were scrutinized closely enough to identify it separately the eye would have to take about nine or ten different positions in reading across the ordinary newspaper column. As a matter of fact we read, not

* I give this number with considerable hesitation. I do not recall having seen any measurements of the retinal area which is useful for vision. From the nature of the problem perhaps no exact measurements are possible. The measurement given is probably near enough to show the approximate proportion; it was calculated from the chart of a normal field.

single letters but words whose forms have become so familiar to us through usage that a slight blurring is insufficient to disguise them. To consider, however, this small image at the macula the only part of the retinal image sharply defined would be an error; the blurring of the peripheral vision is due to a physiological cause, not a physical one; for it is impossible to produce by any correcting lens, an image more accurately defined on the periphery of the fundus than on the fovea. This condition, which one might judge a priori, would result in a seriously low degree of vision, proves in reality highly beneficial, allowing the mind to be concentrated on but few details at a time. It also suggests the vexed question as to the vision of birds and insects.

The average diameter of the fovea is about $25/100$ millimeters; the retinal image which I have described would measure about $27/100$ millimeters; that is, the sharply defined image corresponds closely to the area of the fovea. Finally as the total area of the retina capable of perceiving impressions may be considered as about 500* sq. millimeters and the area of the fovea about .07 sq. millimeters, only approximately $1/7000$ of the retinal area is capable of fine work.

With these figures in mind let us consider the image produced by the 200-foot letter at a distance of 20 feet; or better, to simplify the matter as much as possible, a square of the same size. [In the following remarks no consideration is taken of the concavity of the retina, but the error of considering the retina a plane surface is so small that, except for theoretical results, it may be neglected: for in the case of an object with a visual angle as large as ten degrees (*i. e.*, a square

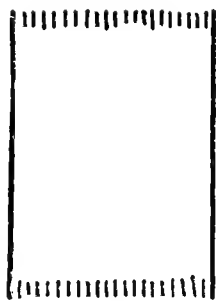


FIG. 1.

meter twenty feet distant) the difference in refraction between the concave and plane surfaces would, at the edges of the image, amount to only about one-seventh of a dioptré.] Upon the retina this object, which is about eighty-eight millimeters square, will project an image .22 millimeters square, or a square one of whose sides measures slightly

in excess of one-fifth of a millimeter. This seems a large letter to us. If an astigmatism with the rule exists the image will cease to be a square and become oblong. It now has the shape of Figure I., with the upper and lower edges blurred if the case is simple myopic astigmatism: with the vertical edges blurred if a case of simple hypermetropic astigmatism (No. II.).

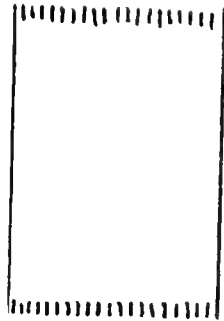


FIG. 2.

In astigmatism against the rule the image is greater in its transverse dimension, as in Figures III. and IV. Number III. being myopic and Number IV. hypermetropic astigmatism

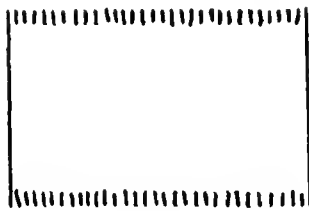


FIG. 3.

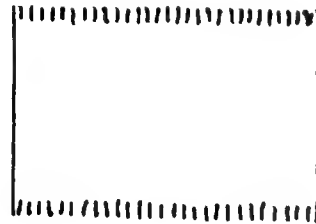


FIG. 4.

If the astigmatism be oblique an image resembling V. is produced, with the meridian of greatest refraction at, say, 75° ; and the

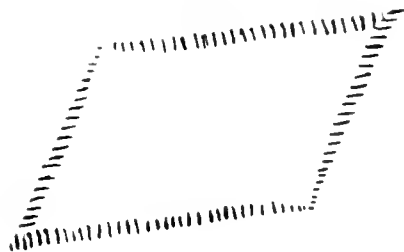


FIG. 5.

axis of the correcting cylinder being 75° or 165° according as a plus or minus lens is used. Blurring of the edges will occur at all parts except at two or more points. If in this case both eyes have the same astigmatism and the axes are as is usual, symmetrical, the

binocular image will resemble Figure VI. where the shaded portion only is common to both eyes, and the open parts exist as blurs, more or less dense.

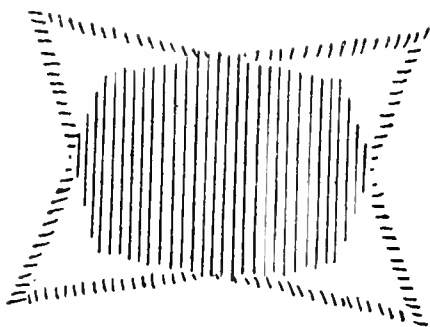


FIG. 6.

If the less common condition prevails and the axes are parallel, the form of Figure V. results. It is therefore probable that of all varieties of regular astigmatism, that with oblique, symmetrical axes produces the greatest degree of distortion of the image and consequently the highest defect in the vision.

From these figures one comprehends how small the retinal images are; and the demonstration is still more striking when we consider small objects. The normal eye can discern a letter nine millimeters square twenty feet distant ($V = 20/20$). Many can recognize a letter seven millimeters square ($V = 20/15$) and some can do even better than this. The image of the seven millimeter letter is only .0175 millimeter square. Moreover the normal eye can readily perceive a dot one millimeter square twenty feet distant and this means an image only .0025 millimeters square, or less than one-half the diameter of a red blood corpuscle. The subject of these small images is an exceedingly interesting one, but is merely referred to here as the writer can present nothing not already readily accessible.

SARCOMA OF THE CHOROID IN A CHILD.*

BY WILLIAM EVANS BRUNER, A. M., M. D.

CLEVELAND, OHIO.

(Illustrated.)

H. B., age five years eleven months, was brought to see me April 3, 1901, with the following history: The paternal grandmother is said to have died from cancer of the uterus. The father's health has always been good except for chronic rheumatism. The mother has always been well until two years ago, when she had some gastric disturbance from which she has fully recovered. They have had thirteen children, all of whom are living except two. One was killed in the Spanish-American War. The cause of death of the other child is not known. The oldest is twenty-eight years of age and the youngest two years. There has been no eye trouble in the family.

This little girl, though never very strong, has usually enjoyed good health. In December, 1898, she had a mild attack of scarlet fever, and associated with it a suppurating adenitis on the right side of the neck. The abscess was opened and healing was prompt. Nothing wrong was noticed with the eyes until about three or four months after the scarlet fever or about two years before I first saw her, and there is no history of any injury to the eye at any time. About two years ago the mother first noticed a small spot in the right eye—a small yellowish reflex in the pupil. This slowly grew larger and about six months later the sight began to fail. About December, 1899, or January, 1900, she began rather suddenly to have pain in the eye. The mother then took her to a physician in Akron who pronounced it a glioma and advised enucleation. She declined to have anything done. At times there would be no pain, then again it would become red and painful and the lids would be slightly swollen. When she "took cold" as the mother expressed it, the "cold" would always settle in the eye. These attacks would recur every two or three months and last several days. Her general health was rather poor when she began having these attacks of pain in the eye, but this improved with tonics. The mother later took the little girl to another physician in Akron who prescribed internal and local treatment and told her that the eye would get well in six months. About November, 1900, she first noticed that the pupil was becoming larger. In January, 1901, the eye became worse. The lids were swollen, the eye ball red and

* Read before the Section of Ophthalmology of Cleveland Academy of Medicine, May 29, 1903.

very painful. About two months before I saw her, the mother brought the little patient to Cleveland to see an oculist. He advised against enucleation, gave her a lotion and told her that the eye would shrink but was not likely to give any further trouble. In conversation with me afterward he said the eye was blind and presented all the appearances of a subsiding panophthalmitis with tension —3. There was no improvement. About a month later the eye began to protrude and shortly afterward the lids became red and swollen. Recently she has had a great deal of pain, no appetite and has not slept well.

Her present condition is well shown in the accompanying photograph. Proptosis is marked. The ball is pushed almost directly forward and is immobile. The upper lid is much swollen and dusky red in color. Considerable effort is required to separate the lids. There is slight bulbar edema in the palpebral fissure. The cornea is only very faintly hazy. The anterior chamber is very shallow or almost obliterated and the pupil is filled with lymph. Tension is +1. The child is apathetic and evidently in pain. Temperature is slightly above normal. Enucleation, or more probably exenteration was advised, though the mother was told that the growth would almost certainly recur locally or elsewhere. The operation would relieve the child of pain and probably would somewhat prolong life.

April 5 under ether anesthesia the eye ball was enucleated. All the surrounding tissues were found adherent to the ball and the sclera was involved. A large mass could be felt filling up the posterior portion of the orbit. Complete exenteration of all of the contents of the orbit was then performed. The periosteum was removed and trimmed off as closely as possible to the apex of the orbit. The bone appeared healthy. The cavity was then packed with iodoform gauze. She slept much better that night than for a long time and the following morning was feeling very comfortable. After several days we began removing a little of the packing each day until the sixth day when all of it was removed and the cavity freely syringed with boric acid solution.

April 23.—The bandage and all packing were discontinued and a small patch substituted. The socket was perfectly clean and the bone covered by normal looking tissue. The following day, April 24, the mother drew our attention to a swelling on the head, which she had noticed the preceding day. A well defined small elevation was found, evidently in the bone itself, situated to the left of the median line just in front of the coronal suture. There was no pain nor tenderness about it. The temperature was normal in the morning and 99°



SARCOMA OF THE CHOROID IN A CHILD.

in the evening. Evidently this was the beginning of a metastatic growth in the left frontal bone. April 26, three weeks after the operation, the little patient left for home. The orbit was perfectly clean and gave no indication as yet of any recurrence. She was looking much better and brighter and had a good appetite. The mother was told of the probable nature of the swelling on the head and was asked to report soon in regard to the child's condition and if possible to bring her to Cleveland again if this growth should become larger or there should be recurrence locally or metastasis anywhere. A letter was also sent to the family physician. As I heard nothing from him I wrote him several more letters without getting any response and finally I wrote the mother. She informed me that the tumor on the child's head grew to the size of a large coffee cup, and another developed on her jaw. She could not close her mouth and for a long time before her death could not talk so as to be understood. She became unable to chew any solid food and could take only liquid nourishment. She suffered much pain and died August 5, just four months after the operation. The eye ball and contents of the orbit were given to Dr. W. T. Howard, Jr., who examined them and pronounced the growth a sarcoma.

There was, of course, nothing unusual in the operation for this case and the final result was merely what was expected. The point of interest pertains to the diagnosis as based upon the clinical course and as determined by examination of the specimen.

Würdeman, writing in Posey's text book on diseases of the eye, one of the latest books published, states that "Sarcoma is extremely rare in children, so that a malignant growth developing in an eye ball would in all probability be regarded as a glioma in a child and a sarcoma in an adult." Fuchs says sarcoma is extremely rare in childhood. "This gives a means of distinguishing it from gliomata which spring from the retina and which in part present symptoms like those of sarcomata but which occur in children exclusively. A malignant neoplasm developing in the eye ball will therefore have to be regarded in all probability as a glioma in a child and as a sarcoma in an adult." Only eleven out of two hundred and fifty-nine cases of sarcoma collected by Fuchs occurred before the age of ten (Berry). Marshal in the Royal London Ophthalmic Hospital Reports, Vol. 15, Part 1, 1899, reports fifty-eight cases of sarcoma of the choroid seen between December, 1891, and the date of his report. The youngest patient was twenty-eight years old. Griffith, in Norris and Oliver's System of Diseases of the Eye, gives the age of sarcoma from twenty years, or

even less, to old age. deSchweinitz in his text book says that "sarcoma of the choroid is differentiated from glioma by the fact that the former usually occurs at a later period of life." Glioma, on the other hand, is sometimes congenital, usually occurs before the third year, but rarely as late as the eleventh or twelfth year. Marshal, in the Royal London Ophthalmic Hospital Reports, Vol. XIV, reports forty-three undoubted cases of glioma of the retina which had been examined in the laboratory. Of these fifteen were detected before the first year, twelve between the first and second, eight between the second and third, four between the third and fourth, two between the fourth and fifth and one between the sixth and seventh. Schöble, in Norris and Oliver's System, says most of the cases occur between the first and third years, and most or all of the authorities agree with him. In our little patient the grayish reflex from the fundus was first noticed when she was about four years old, and she was about six years old when we first saw her. The age in our patient would therefore correspond to that of glioma. Several years previously, however, in 1898, I saw a little girl two years of age at the dispensary in whose eye something abnormal had been noticed a year previously, or when she was only one year old. The appearance at the time of her visit was typical of the so-called "amaurotic cat's eye" and glioma of the retina was diagnosed. The eye was enucleated and examination in the laboratory showed it to be an angio-sarcoma of the choroid originating from the central artery of the retina. Age, therefore, is an uncertain element in making a diagnosis.

The glioma "resembles closely in its structure a round cell sarcoma, so much so," says Berry, "that they are by some considered to be identical." Most text books speak of them as distinct diseases. Since Virchow almost all modern investigators except Klebs have accepted the fact that gliomata start from the supporting fibers of the retina, and they may therefore start from any of the layers except the rods and cones. Some workers have doubted whether glioma is independent of and different from sarcoma. Schöble thinks they are distinct. "Not a single observer has found a glioma starting from a retinal blood vessel. With sarcoma this is not rare." This was true in the one case mentioned above. In my own patient it was impossible to tell at the stage when the eye was examined where the tumor had originated. The glioma may become mixed in type, or as Schöble says, "it seems evident that as the tumor comes in contact with different tissues, it may induce in them severally a hyperplasia characteristic of their own structure. As glioma spreads into the choroid and sclera the cells

assume the character of a small, round celled sarcoma. True sarcomata of the retina are of a secondary nature coming from the choroid and propagated into the retina." It would seem, therefore, that the two are in reality identical, as some authorities have asserted, or else there is a great deal of confusion in distinguishing between them, and many are being wrongly diagnosed. Clinically there are supposed to be other points of difference between them: but, if there is a difference, it evidently cannot be positively determined clinically and can be determined only by microscopical examination of the specimen.

In our patient the eye was interesting because of the stage it passed through in which it resembled an old case of panophthalmitis, and was so diagnosed, while previously it had evidently presented the clinical symptoms of the first stage of glioma. Virchow believed that the shrinking of the eye in these rare cases of glioma is due to a high grade regressive metamorphosis and absorption of the fluid contents, while Von Graefe considered them due to inflammatory processes in the uveal tract, as an iridocyclitis or subacute or chronic panophthalmitis. Schöble inclines to the opinion that both factors are active. He calls such a growth a cryptoglioma and believes it is impossible in some of these cases to make a correct diagnosis. Von Graefe mentioned some points to aid in the recognition of glioma in a shrunken eye ball—the shape and painfulness of the stump. These are mentioned in many text books but they seem very uncertain and unreliable. Sarcoma may also occur in shrunken or phthisical eye balls, or rather may at times cause phthisis bulbi, and at times simulates chronic iritis, as in the case reported by Griffith in the *Ophthalmic Review*, December, 1891. The process by which this is brought about is the same as in glioma and there is also the same impossibility of positive diagnosis. I recall such a case reported a few years ago at the Cleveland Medical Society by Dr. Aldrich, I think. The patient died of sarcoma of the liver metastatic from an old shrunken eye which had been entirely unsuspected of containing such a growth.

DOUBLE HAND SKIASCOPE.

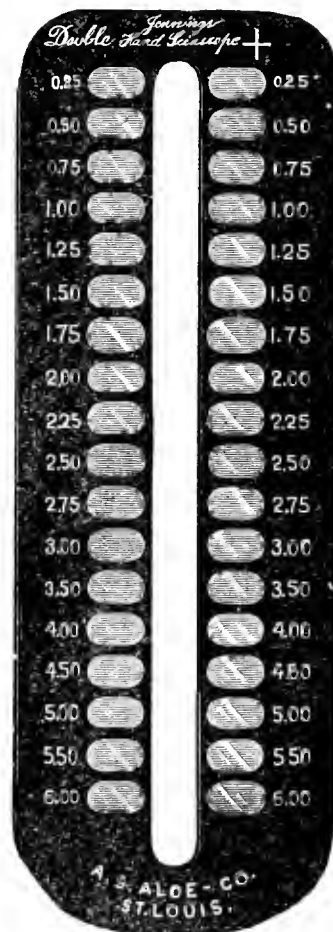
BY J. E. JENNINGS, M. D.,

Author of "Ophthalmoscopy," Ophthalmic and Aural Surgeon to the "Frisco System," etc, etc

ST. LOUIS, MO.

(Illustrated.)

In 1896 I designed and introduced to the profession a skiascope consisting of thirty-nine lenses revolving in an upright frame with a recording disc, etc., mounted on an adjustable stand. This skiascope has been in constant use up to the present and has proven of inestimable service in saving time and fatigue in retinoscopic work. For those who do not care to have such an elaborate and expensive instru-



ment, or who have no space in their office for its accommodation, I wish to present my "Double Hand Skiascope." It consists of two aluminum frames, one holding eighteen pairs of convex lenses and the other eighteen pairs of concave lenses. Each frame is $19\frac{1}{4}$ inches long and $6\frac{3}{4}$ inches wide, with an opening 17×1 inch down the middle to accommodate the nose when the skiascope is held in position.

The lenses are $1\frac{1}{4} \times \frac{3}{4}$ inch and so placed that it is possible to examine patients with pupillary distances ranging from forty-five to eighty-five mm. The strength of the various lenses are as follows: 0.25, 0.50, 0.75, 1.00, 1.25, 1.50, 1.75, 2.00, 2.25, 2.50, 2.75, 3.00, 3.50, 4.00, 4.50, 5.00, 5.50, 6.00. Instead of a handle at the bottom, as in other hand skiascopes, the metal frame extends at the sides $1\frac{1}{2}$ inches beyond the lenses, making a convenient hand rail with which to hold the instrument in position. The space at the bottom usually occupied by a handle is utilized for an additional number of lenses.

In using the skiascope the frame containing the convex or concave lenses, according to the case, is held firmly in both hands by the broad edges, with nose through the opening and eyes accurately centered behind the upper or weakest pair of lenses. After each eye is tested, the patient shifts the instrument up until he looks through the next stronger pair of lenses, and so on until the examination is completed.

The essential advantages of the "Double Hand Skiascope" are as follows:

1. Both eyes may be examined before moving the instrument.
2. The skiascope rests against the forehead, sides of the nose, lips and chin so that the lenses are as accurately centered as is possible with the best fitting trial frame.
3. This accuracy is further assured by the instrument being held at the side with both hands.
4. The space usually occupied for a handle is utilized for an additional number of lenses.
5. It has more than twice the number of lenses found in any other hand skiascope.
6. The shape and position of the lenses adapts it for use with children as well as grown patients; the pupillary distances ranging from forty-five to eighty-five mm.

The "Double Hand Skiascope" is made by the A. S. Aloe Company, St. Louis.

A PRISM-SEQUENCE FOR MEASURING HETEROPHORIA.*

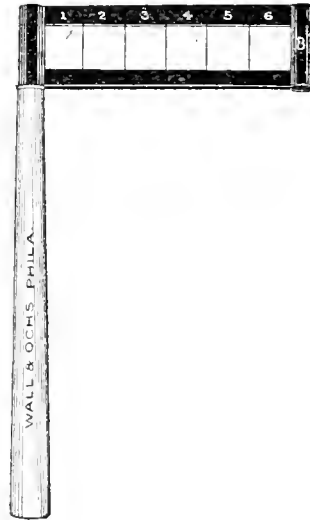
BY WALTER L. PYLE, M. D.,

Assistant Surgeon to Wills Eye Hospital.

PHILADELPHIA, PA.

(Illustrated)

Unless one uses the phorometer or optometer with a rotary prism, the selection from the test case of the appropriate correcting prisms in the measurement of heterophoria necessitates considerable loss of time. I have found the small prism-sequence herein described a great convenience and aid to rapid work. It may be used in conjunction with the Maddox rod, the red glass, or the prism diplopia-test.



The instrument consists of a frame two and one-half inches long, and five-eighths inch wide, containing six small prisms, each three-eighths inch square, arranged bases out, beginning at the left as follows: 1° , 2° , 3° , 4° , 5° , 6° . The figures denoting the strength of each prismatic square are inscribed in white on both sides of the black frame. The handle may be screwed into either end of the frame, but is usually placed on the right end, near the 6° prism. The name of the instrument or the maker's name is placed on the front of the instrument, and the letter B is stamped in white on the frame to denote the base of the prisms.

In making tests for heterophoria, it is common to place the Maddox rod before the left eye. In such case, if the light-streak is seen to the left, as is commonly the case, the instrument is moved to

*Presented at a meeting of the American Ophthalmological Society at Washington, D. C., May 13, 1903.

the patient's right, carrying the handle toward the patient's nose until the streak exactly bisects the light. In cases of hyperphoria, the prism-scale is moved up or down, as the defect requires. In measuring exophoria with the rod before the left eye, the instrument is reversed by a complete turn of the handle and brought before the left eye from the patient's right; or the handle may be screwed into the left end of the frame, adjoining the 1° prism, making a sequence with bases in, and then carried towards the patient's left, away from the nose.

I am indebted to Messrs. Wall & Ochs, opticians, of Philadelphia, for the manufacture of the instrument..

SLIGHT MODIFICATIONS OF THE VAN MILLINGEN AND OF THE HOTZ-ANAGNOSTAKIS OPERATIONS FOR ENTROPIUM.

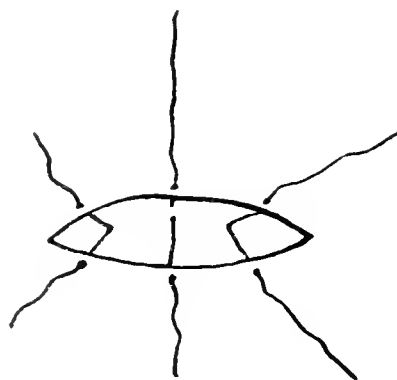
BY HAROLD GIFFORD, M. D.,

OMAHA, NEB.

(Illustrated.)

As for the last sixteen years I have been doing something like fifty entropium operations a year, the results of my experience may be of some interest to the younger readers of THE RECORD. I speak of operations for entropium since this is customary, although as a matter of fact the entropium is not what is operated for, but the trichiasis which the entropium causes. Although some observers claim that the entropium itself does harm to the cornea, I have never seen any evidence of this unless lashes were turned in so as to touch it. In marked entropium of the upper lid and nearly all cases where the lower lid has been affected, I have for years relied almost entirely on the Van Millingen operation, which, in brief, consists in splitting the margin of the lid and introducing a strip of lip membrane into the gap. After no other operation do I feel so positive that the patient will not be bothered again by ingrowing lashes as after a successful operation of this kind. The only reasons which I can advance for the comparative unpopularity of this operation are: 1st, the difficulty of making the cut in the lip margin gap widely enough; 2nd, the tendency to put in too short a flap, the temptation not to extend the cut into portions of the lid where no lashes are turning in being too great to be resisted except after considerable experience. To obviate the first difficulty, instead of introducing the sutures intended to make the incision gap, in the way recommended by Van Millingen

(namely, first through the edge of the lid, then through the skin high up toward the brow, which generally everts the whole lid instead of widening the cut), I have put the sutures, three or four in number, first through the margin of the lid, immediately external to the incision, then through a narrow fold of the loose skin of the lid about three-sixteenths of an inch above (or in the case of the lower lid, below) the lashes. A bit of absorbent cotton, wet in sterilized boracic solution, is then made into a firm roll about one-eighth inch in diameter and one and one-half in length and is tucked under the free portions of the sutures so that when the latter are tightened the roll is pressed down into the tissues just above the edge of the tarsus, thus everting the outer margin of the tarsal incision without everting the



Lid as a whole. Before tightening each knot it is well, while the ends of the thread are held with one hand, to push the roll of cotton firmly against the tissue with a pair of forceps so that the eversion may be accomplished with the least possible strain on the sutures; the incision also gaps more easily if, just before tying the knots, it is reopened by running some blunt instrument along its bottom from one end to the other. The lid is then protected from infection by a moist pad of cotton while the lip flap is excised. For this excision a larger clamp than the ordinary Demarres is desirable. The open space within the fenestrum should be at least an inch and a half in its longest diameter in order to obtain a long enough flap for some lids without loosening and resetting it. The lip flap should be nearly one-eighth inch wide and should have the sub-mucous tissue trimmed off, but care should be taken not to make it too thin or it will not hold the edges of the cut apart after the stitches are taken out. Sutures to hold this flap in position are not necessary if it is carefully pressed down into the cut with moist forceps or a moist swab and a suitable dressing applied. For this purpose I generally first apply a thin sheet of wet

absorbent cotton thickly smeared with sterile white vaseline upon which iodoform is finely powdered. This is laid on the outer surface of the operated lid and the edge tucked over the flap so as to lie between it and the edge of opposing lid when the lids are closed. Over this more wet cotton is laid, then gutta percha tissue, then more cotton fastened at the edges with collodion, and a very carefully applied bandage, which is generally not changed for three to five days. After the fifth day the bandage can generally be left off, but for several days thereafter it is well to apply white vaseline to the edges of the lids several times a day to keep the flap from getting dry. I think it unadvisable to operate upon both lids of the same eye at one sitting unless the circumstances are unusually urgent. Where the result is not perfect the failure is hardly ever due to necrosis of the flap, but to the incision having been made either too far in or too far out or not long enough. In deciding just where to make the incision the utmost care must be taken to leave all the hair bulgs in the outer flap, since if, after the flap heals in, any lashes appear between it and the globe they are very difficult to deal with; but in striving to avoid this, if the cut is made too far in, the inner flap is so thin that it is difficult to obtain a proper gaping of the incision. Where the lid has been turned in for a long time it is very difficult to determine the proper limits of the ciliary border, but by careful inspection the openings of the Meibomian glands can generally be seen, and if the incision hugs these closely and is directed toward the middle of the antero-posterior thickness of the lid, mistakes will seldom occur. Where only a portion of the lid is turned in, there is a great temptation to limit the incision of the lid to this portion, but this is generally a mistake, since it often happens, after the affected lashes are turned out, that others just outside of the portion affected by the flap, turn in and touch the cornea. The incision should extend well beyond the inverted portions of the lid and except where the trichiasis is confined to the center of the lid, the cut should go well out into the skin at each extremity of the tarsus.

This splint stitch for the Van Millingen operation was, I think, first described by me in 1892. (*Am. Journal of Ophthal.*), but at almost the same time a Russian whose name I unfortunately have lost, described it independently, and it has later been described by Wolters (*Abst. in Supplement to Arch. für Augenheilk.* XXXIV., p. 147). The plan of introducing a lip flap into a Von Bürow incision on the inner surface of the tarsus, was also described by me in 1892, and has since been recommended by Maher (*Archives of Ophthal.*, July, 1897).

but I have practically abandoned this plan, used by itself, since I find that the same amount of lip has not nearly as much effect upon the eversion of the lashes when introduced into the inner surface of the tarsus, as it has when introduced into the margin of the lid.

A MODIFIED HOTZ-ANAGNOSTAKIS OPERATION.

For some years in doing the Hotz operation, (which I use for the lower grades of entropium) after getting the sutures in place, I have, before tying them, everted the tarsus and made an incision through its entire thickness from end to end, not more than 3 m.m. from the lid margin. After this, when the sutures are tied their effect is distinctly greater than without the Von Bürow incision. This of course makes a combination very similar to Green's operation, but the principle of the Hotz operation is so important that the two should not be confused.

One disadvantage of the Hotz stitch, as applied to cases in which lashes at the extremities of the lids turn in, is that the tarsus is here so narrow that it is often impossible, if the stitches are put straight through, to get sufficient purchase on it to turn the lashes out; and to overcome this difficulty I have made the sutures at the extremities of the lids take a zigzag course, as in Fig. 1; this produces a slight temporary puckering of the skin, but the effect of such a stitch on the eversion of the tarsal edge is manifestly greater than where the thread is put through in a straight line.

I also believe it is well to excise a very narrow strip of skin with the orbicularis fibres and, as recommended particularly by Schnabel, I make the incision not more than one-eighth inch from the lashes in the center and rather less than this at the extremities.

One objection to these operations and all others that I have seen tried for entropium, is that when done during the latter stages of trachoma, slight ulcerations of the cornea occasionally develop under the bandage, after the third or fourth day. These usually are of no consequence, but in three of my cases the ulceration has been so serious as to leave some slight impairment of vision; so that in spite of my fondness for these operations, if I could find another equally effective which would not be open to the same charge I should be glad to adopt it.

A CASE OF SYPHILITIC ORBITAL PERIOSTITIS AND
OPTIC NEURITIS IN WHICH VISION WAS
ALMOST EXTINGUISHED BUT COM-
PLETELY RESTORED.

BY F. C. HOTZ, M. D.,

CHICAGO.

On March 19, 1902, Mr. K., forty-nine years old, consulted me on account of rapid failure of vision. He had never had any serious illness, but twenty years ago had a chancre, for which he received constitutional treatment at the time, and, as he claimed, never had any secondary manifestations. During the past six weeks he suffered almost continuously from frontal headache, which was especially severe at night. One week ago the vision of the right eye became impaired and since two days the left eye had also been failing very rapidly.

Examination.—Vision of R. E. reduced to counting fingers at six inches. The inferior nasal quadrant of field gone; pupil medium wide and but feebly responding to light; disk swollen, grayish red, its contours blurred, the veins dilated and tortuous; the eye ball rather prominent and back pressure on globe painful. L. E. fingers at ten feet, inferior nasal quadrant of field gone, tension normal; pupil active; disk very red, its nasal margin fairly well defined, temporal half swollen and blurred; veins dilated. Eye ball even more protruding than the left eye and back pressure very painful.

Treatment.—Artificial leech to each temple, ice bladder on head, inunction of half an ounce every morning and evening, and potassium iodide, 10 grs., three times daily to be increased by five grains every day.

March 24. Less headache, R. E. less prominent, fingers at six feet, disk less swollen and no pain on back pressure. L. E. still protruding and back pressure painful; vision reduced to perception of light in the central area of the field; whole disk swollen and cloudy; veins very large and tortuous.

March 31. No headache, R. E. not prominent, fingers at eight feet and perception in inferior nasal quadrant restored; disk of normal size, still grayish red, veins smaller and less tortuous. L. E. less prominent and no pain on back pressure; perception restored in temporal field; disk less swollen.

April 10. R. E. fingers twelve feet, disk of normal size and appearance and veins of normal caliber. L. E. fingers at two feet and

perception in all parts of the field; disk still slightly blurred but veins of normal size. He is taking 120 grs. of K. I. pro dosi.

From this time on he improved very fast so that at the end of April both eyes showed normal ophthalmoscopic appearance with vision of R. E. 20/20 and L. E. 20/30. Inunctions and K. I. were discontinued and hydrarg. prot. gr. $\frac{1}{4}$. was ordered.

May 14. both eyes showed V 20/20, normal field of vision, normal fundi, and the same condition was found in November, when the patient called to have his reading glasses refitted.

Remarks.—The rapid course of the disease from start to finish justifies, I believe, the opinion that we had to deal with a rapidly progressive inflammatory process, and not with a slowly growing tumor. This opinion is supported by the ophthalmoscopic findings at the first examination, which in the L. E. showed the active hyperaemia of inflammation, not the passive congestion of choked disk. The question now arises whether the inflammation was intracranial or orbital. We know that syphilitic inflammation selects within the skull preferably two locations: the space bounded anteriorly by the chiasma and laterally by the optic tracts, and the pedunculi cerebri; and secondly the space in front of the chiasma between the optic nerves. In either case the optic nerves are involved and optic neuritis results. If the inflammation occurs in the space between the optic tracts it invades first and chiefly that portion of each tract containing the nerve fibres which cross in the chiasma and supply the nasal half of each retina; and therefore, as Uhthoff* has shown, temporal hemianopsia is the ruling symptom under these circumstances. If the inflammation occupies the space in front of the chiasma and invades the optic nerve it most likely affects the papillomacular bundles which near the chiasma are situated quite peripherally, and therefore a central scotoma is the usual visual disturbance observed under these circumstances. But in our case there were neither central scotoma nor temporal hemianopsia; central perception was never entirely extinguished and the chief disturbance of the peripheral vision was in the nasal field. While these facts made it very improbable that we had to deal with an intracranial lesion, there was the exophthalmus and the pain on pressure upon the globe, which symptoms could not be explained at all by an intracranial lesion, but pointed unmistakably to the orbit as the seat of the pathologic process which, in my opinion, was a periostitis along the orbital roof. Syphilitic orbital periostitis is known to produce violent periorbital pain with marked nightly ex-

*Graefe's Archiv. xxxix.

acerbations, and to lead to swelling and hyperplasia of the orbital tissues. It is plain that under such conditions the eye ball is pushed forward, that the orbital tissues are sensitive to pressure and that the inflammation reaching the optic foramen will rapidly and seriously impair the function of the optic nerve and produce the intraocular signs of optic neuritis.

A very interesting feature is the symmetrical appearance of the periostitis in both orbits. Cases of symmetrical syphilitic affections in the orbit have been reported by Schott, Alexander and Goldzieher. In all cases the affection started as periostitis of the orbital roof and sooner or later developed a tumor which could be felt between the orbital roof and eye ball. In one of Goldzieher's cases the tumors were taken for fibrosarcoma and extirpated; it was found the tumors were not enclosed in a capsule but gradually tapered off towards the apex of the orbit, where they resolved themselves into numerous strands radiating into the orbital tissue. This patient died and the post-mortem examination disclosed extensive syphilitic lesions in the orbits and other parts. Goldzieher is of the opinion that symmetrical affections of both orbits with exophthalmus and periorbital pain justify the suspicion of syphilis, and I believe in our case the periostitis would have produced such symmetrical tumors, but this serious result and the destruction of the optic nerves was obviated by the early and energetic treatment.

TUBERCULOSIS OF THE IRIS, WITH PRESENTATION OF MICROSCOPIC SPECIMENS.*

BY WM. H. WILDER, M. D.,

Assistant Professor of Ophthalmology, Rush Medical College (no affiliation with the University of Chicago); Professor of Ophthalmology, Chicago Polyclinic; Surgeon to the Illinois Charitable Eye and Ear Infirmary.

CHICAGO.

Some difference of opinion seems to exist as to the frequency of this disease. Wagner (Münch. Med. Wochenschr., 1891, Nos. 15 and 16) states that fifty per cent of all cases of iritis are of this character. Michel (Lehrbuch der Augenheilkunde) also regards it as very common, and states that forty or fifty of every hundred cases of iritis are tuberculous. Both authors seem to include in their category all cases of serous iritis in which there are small masses of exudate in or upon the iris, that simulate in any manner tuberculous nodules. Horner

* Read at the meeting of the Academy of Ophthalmology and Oto-Laryngology, at Indianapolis, April 9, 1903.

estimates that it will not be observed more frequently than once in four thousand cases of eye diseases, while Hirschberg, of Berlin, saw only six cases of it among sixty thousand eye cases.

Velhagen (*Klin. Monatsbl. f. Augenh.*, xxxii., p. 121) says that among eight thousand patients in the Eye Clinic at Göttingen, no case of tuberculous iritis was seen. With these latter opinions, I think most ophthalmologists will agree, and we must conclude, therefore, that it is a rare affection. Probably early observers who had opportunity for examining such cases, considered them as either condylomata or sarcomata, or placed them in the category of idiopathic iritis; but with the invention of the ophthalmoscope and the discovery that tubercles develop in the choroid in connection with either general or meningeal tuberculosis, a more careful study of certain inflammations of the iris and ciliary body has determined their exact nature. Cohnheim demonstrated that tuberculous iritis can be caused by introducing particles from tuberculous lymphatic glands, granulations of tuberculous joints, etc., into the anterior chamber of the eye. More recently investigators have caused the disease experimentally by injecting pure cultures of the tubercle bacilli into the aqueous chamber. The introduction of small masses of suspected tissue into the anterior chamber of the eye of a rabbit is employed as a means of determining whether such tissue is tuberculous. About twenty or thirty days after the injection into the eye, small, reddish grey nodules make their appearance in the iris, and the eye becomes inflamed. The nodules increase in number, coalesce, and fill the anterior chamber with a mass of new tissue. The cornea becomes involved and the growth breaks through, thus destroying the eye. The animal usually dies from general tuberculosis.

Tuberculosis of the iris manifests itself in three forms:

- 1st. Solitary tubercle.
- 2nd. Disseminated tubercle.
- 3rd. Simple, inflammatory tuberculous iritis (Michel).

The solitary growth affects one eye alone and develops as a small, round or oval nodule, usually at the periphery of the lower part of the iris. It is grayish red in color, and as it grows, it fills the anterior chamber of the eye, and much resembles a neoplasm. Indeed such a mass may easily be taken for a sarcoma. This also goes by the name of granuloma, a term, according to Fuchs, that was given by von Graefe, "because Virchow, who made the anatomical examination of the tumor, designated it as granulation tissue." This term should be abandoned, for it is misleading, and liable to create confusion. As the

growth increases, the cornea becomes involved and perforates, allowing the mass to break through, which presents as a pale yellowish or grayish mass similar in appearance to granulation tissue. It does not then continue to grow, but breaks down, and the eyeball gradually begins to shrink as the inflammatory process occasioned by the growth subsides. The eye is, of course, lost and phthisis bulbi ensues. General tuberculous infection may result.

In the disseminated form which may occur in one or in both eyes, there are at first all the symptoms and signs of an iritis. Soon little, yellowish grey nodules surrounded by a slightly reddened zone, appear in the iris. These vary in size according to the stage of the growth, but are from one to six m.m. in diameter. Their favorite site is at the root or periphery of the iris, and they seem to be constantly changing, some disappearing while others are forming. Their predilection for the outer or root zone of the iris helps to distinguish them from the condylomatous nodules, so frequent in syphilitic iritis that usually are seen at the pupillary margin. Greef describes them as of the size of millet seed, distributed over the iris, especially over its lower half and some distance from the pupillary margin on the *circulus arteriosis minor*. Some of these tubercles may disappear completely, leaving small patches of atrophied iris, while others may coalesce, forming larger tuberculous masses that fill in the angle of the anterior chamber.

The iris is dull and discolored, and flakes of lymph and disintegrated tuberculous nodules may fill in and occlude the pupil. Firm and extensive adhesions form between the iris and the lens and the tension of the eye may become markedly increased. Lubrowski (*Archives Ophthalmology*, Vol. XXIX., No. 3) reports several cases in which glaucoma supervened. Ciliary injection is marked and the eye is very often sensitive to pressure. The ciliary body and choroid may be invaded, and even the cornea may be involved, the tubercles presenting the same general appearances in that structure as in the iris.

As the case progresses, there may be bulging of the ciliary region and even perforation; or the process may subside with gradual shrinking and atrophy of the eye ball. Tubercular meningitis or general tuberculosis may supervene, so that the prognosis, both general and local, is bad.

In the third form, according to Michel, the tubercles are not clinically demonstrable, being situated in the tissue of the iris and not on the surface. The disease assumes the form of a chronic iritis or irido-cyclitis, which causes either complete annular posterior synechia

of the iris, or adhesion of its posterior surface to the lens. In the former, there would be iris bombé and more or less atrophy of the tissue of the iris. In the latter form there is a proliferating inflammation of the iris which becomes hypertrophied, and granulation tissue fills the posterior chamber. The tuberculous nature of the trouble may be demonstrated by excising a piece of the iris, and examining it microscopically for the existence of tubercle. Deposits of lime are frequently found in such irides, and even true bone formation has been observed as in the choroid.

Some observers, Leber (Bericht der XXI. Versammlung d. Ophthalmol. Gesellsch., Heidelberg, 1891), Samelsohn (Bericht der XXIII. Versammlung der Ophthalmolog. Gesellsch., Heidelberg, 1893), and Van Duyse (Archiv. d'Ophthalmologie XII., p. 478), describe a form of attenuated tuberculous iritis, presenting all the salient features of the disseminated form, which may end in spontaneous recovery, the functions of the eye being partly or wholly preserved. This form is slower in its course and affects older persons.

All of the forms mentioned present the same histological features, differing in degree, namely the typical tubercle formation of round cells around a central giant cell. This giant cell is a large crescentic or round structure with nongranular protoplasm, containing near its periphery numerous elongated nuclei. The little tubercle mass is frequently seen on the wall of a vessel, and develops from the adventitia. This is one means of differentiating histologically a tubercular from a syphilitic node, for in the latter, the growth begins in the intima and the lumen of the vessel is blocked. In the milder forms of the disease, the bacilli are very scarce and difficult to find. It is assumed, therefore, that in some of these cases the exciting cause is not so much the direct action of the bacilli, as it is the irritation caused by the toxines generated by them, circulating through the delicate tissue of the iris, which, for some reason, is unusually sensitive and susceptible.

This is a disease of childhood and adolescence, the large majority of such patients being under the age of twenty years. Of 121 cases reviewed by Schieck (Graefe's Archiv. für Ophthalmologie Bd. 50, part 2. 1900) ninety-six were under the age of twenty years; while of the remaining twenty-five, only six were over thirty years. The oldest was fifty-five.

Most of the patients affected with tuberculous iritis have either pulmonary tuberculosis or tuberculous manifestations in other structures, such as joints, lymphatic glands or skin. Some have a bad family history, while a few have neither a family nor a personal history

of tuberculosis, nor do they show any manifest signs of the disease, except the lesion of the eye. Such cases raise the very interesting and important question, whether the iritis is primary or secondary to some other tuberculous lesion, and many capable observers take the view that it is primary. It is argued that the eye of a sound person may be infected locally through an abrasion of the cornea, or an ulcer of the cornea or conjunctiva, and that in such manner the bacilli may gain entrance to the deeper circulation of the eye.

OPERATIVE TREATMENT OF POSTERIOR SYNECHIA.

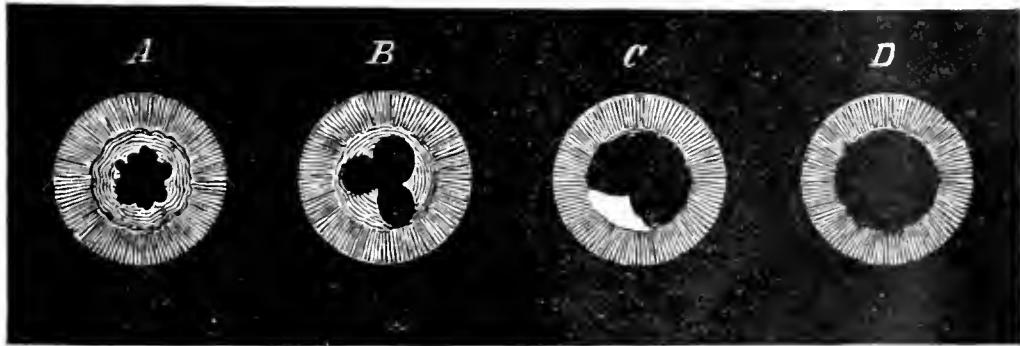
BY J. F. FULTON, M. D.,

Professor of Ophthalmology and, Otology University of Minnesota.

ST. PAUL, MINN.

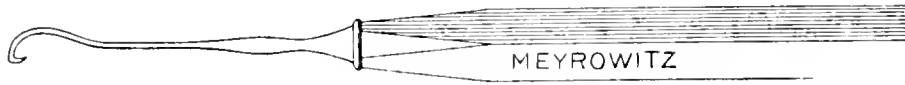
(Illustrated)

One of the most delicate operations which the ophthalmic surgeon is called upon to perform, is the release of adhesions of the iris to the lens—in other words posterior synechiae. To remedy such abnormal conditions I advise the use of the instrument pictured in the text. I have used it many times and find it extremely satisfactory. With such an instrument the adhesions can be safely broken up and, as a rule, without producing traumatic cataract. I herewith present the results of operations performed by this instrument.



The importance of relieving this condition without producing cataract is apparent to every one who has given the subject careful consideration. When the adhesions are numerous and extensive, the incessant dragging of the iris, under the stimulus of light and accommodation, may result in serious damage to the eye. With each recurrent attack of inflammation, the adhesions become more extensive and more strongly adherent, indicating the necessity for relief at the earliest possible opportunity, so as to prevent total posterior synechia

which in turn interfere with the normal communication between the anterior and posterior chambers. The seriousness of this unfortunate condition does not seem to be appreciated, as a rule, by the members of our profession. When it is found that adhesions of the iris to the lens resist the action of myriatics, I regard it as imperative to resort to surgical interference. This can be done in two ways: either by iridectomy, or by the breaking up of the adhesions by means of a blunt-pointed crook. If this latter procedure be carried out with a



careful and steady hand it can be done, in the large majority of cases, without rupturing the capsule of the lens. This will be found a much safer procedure than that recommended by Passavant, of tearing the adhesions loose by means of iris forceps. The former plan (originally suggested by Streatfield) has been put in practice by modern operators in many instances, and much more safely than the Passavant procedure.

As to the technique of the operation, the eye should be placed as a prophylactic, under the influence of atropia and every needful aseptic and antiseptic precaution taken. The anterior chamber is now opened by a spade knife and the adhesions carefully broken up by means of the blunt-pointed probe. The instrument is made by E. B. Meyrowitz, St. Paul, Minn.

ABSTRACTS FROM RECENT OPHTHALMIC LITERATURE.

E. A. SHUMWAY, M. D.,

PHILADELPHIA.

A Note Concerning the Statistics of Myopia Operations.—Axenfeld (*Klin. Monatsbl. f. Augenheilk.*, Jan., 1903) calls attention to the danger of late detachment of the retina, after removal of the lens in high myopia, especially when discission of the posterior capsule, or after cataract, is required. He cites three cases in his list of 43 operations, in which, after excellent primary results, detachment occurred, in two cases after discission. He says that there may be a difference of opinion in a given case, as to whether the detachment is the result of the discission or not; many eyes also will stand a late discission. That, however, the discission of the posterior lens capsule *may* lead to detachment in myopes, is true, a fact that has been emphasized, and rightly so, by Hirschberg. At all events the statistics should make more allowance for this possibility of later discissions and their complications, than has hitherto been done. Only when a large number of cases have been watched for many years, can a final and certain opinion be given as to the permanent result, in regard to retinal detachment. He believes that in operating, that method should be adopted which obviates the necessity of subsequent discission. Where the primary extraction of the transparent lens is attempted, he suggests the use of the capsule forceps instead of a free discission of the anterior capsule, as experience has taught that after cataracts come less frequently when the anterior capsule is removed than when a simple cystotomy is done. Those who do discission, by Fukala's method, should endeavor to make large openings in the anterior capsule, which subsequently will not so easily be closed. Axenfeld is accustomed to make a subconjunctival vertical discission of the capsule, at the first operation, extending from the upper to the lower edge of the dilated pupil. If swelling of the lens occurs too rapidly, and the intraocular tension rises, he evacuates the lens by a corneal incision, but makes a free discission of the lateral portions of the capsule, at the same time. If the swelling is less rapid he makes a horizontal opening in the capsule, several days later. He thus secures broad openings, and controls the amount of swelling of the lens, so that secondary glaucoma rarely occurs. More than one linear extraction is never necessary, and a subsequent discission of after cataract has not been required during the two years that he has operated in this manner.

Anatomical Examination of a Case of Primary Gumma of the Iris.—Rumschewitsch (*Klin. Monatsbl. f. Augenheilk.*, Jan., 1903) observed a case of primary gumma of the iris in a man 48 years of age. Iritis had appeared as a secondary symptom a half year after the initial infection, and had recurred five times during the course of twelve years. Finally in the twelfth year of the disease a gumma had formed in the iris, in which synechia and ectropion uveae already existed. It was accompanied by other tertiary symptoms and probably arose first in the vascular stroma of the iris tissue. Anatomically in addition to the atrophy of the iris tissue from the repeated inflammatory attacks, he found a typical gumma, the central part of which was without structure, as a result of the extensive cheesy degeneration of the new formed tissue. The blood vessels were in many places entirely obliterated and isolated nodules formed by comparatively large cells, arranged concentrically around the altered vessels were scattered through the atrophic iris tissue. He could find but three cases in literature, in which pathological examination of a certain case of gumma, originating primarily in the iris, had been recorded. In his case the gumma occurred in the tertiary period. In those of Graefe-Colberg and Benoit it was found during the secondary period, but he does not believe that they are to be excluded, on that account, as Ricord's chronological scheme of the symptoms of syphilis is not infallible, since disease of the meninges has been reported in the first months, and a papular eruption has occurred fifteen years after the infection.

Concerning Iritis Serosa.—Prof. K. Baas (*Zeitschrift f. Augenheilk.*, Jan., 1903.) describes the anatomical changes in a case of iritis serosa. His findings agree in the main with those previously described by Grönouw, consisting of new vessel formation in the middle layers of the cornea, round cell infiltration of the posterior lamellæ, irregularity of the endothelium lining Descemet's membrane, and the presence of heaps of round cells on the posterior surface of the cornea, free in the anterior chamber, mixed with fibrin and blood, and on the surface of the iris. The iris was also infiltrated with round cells, and as it was firmly adherent to the lens capsule, so that no communication existed between the anterior and posterior chambers, Baas believes that the precipitated cells on the posterior surface of the cornea could have been furnished only by the iris. He thinks that in many of the cases of iritis serosa the deposits have the same origin, and do not arise from the ciliary body. He likewise considers Arlt's explanation of the presence of these precip-

itates on the cornea as the result of a centrifugal force, due to the movements of the eye, as quite unnecessary. Such movements would only occur in well marked nystagmus, and in ordinary cases the eyeball is moved to and fro with only moderate rapidity. The more probable explanation is that it is a simple sedimentation, and as the axis of the eye is naturally directed downward, so that the concave posterior surface of the cornea is directed upward and backward, the particles precipitate on the cornea, in the form of a triangle, just as they would in a glass flask, turned on its side.

A Case of Tetanus Following Injury of the Eye.—Adolph W. Genth (*Zeitschrift f. Augenheilk.*, Jan., 1903) describes a case of cephalic tetanus as the result of an injury of the eyeball and lid. Despite repeated injections of tetanus antitoxin, the patient died, during a convulsion, on the 17th day after the injury. At the autopsy a knife blade, 5 cm. long and $1\frac{1}{2}$ cm. broad was found sticking in the antrum of Hignore and projecting 4 mm. out of the orbital tissues below. The point of the knife had been forced past the roots of the last molar tooth, through the alveola process, into the gum. The foreign body, which was entirely unsuspected, had carried in the tetanus organisms, which had multiplied rapidly, away from the air, as the wound in the lid had been immediately sutured, and had produced a hemorrhagic empyema of the antrum. Genth calls attention to the necessity of careful examinations of all wounds of the eye and orbit for the remains of foreign bodies, a maxim which Berlin and Rose have repeatedly urged.

Changes in the Central Part of the Retina in the Insane.—Prof. Kuhut and Dr. Wokenius (*Zeitschrift f. Augenheilk.*, Feb., 1903) give the results of the ophthalmoscopic examination of 511 cases in the insane and foster asylums of Kortau. Of the whole number 143 showed changes of various sorts, including partial and complete atrophy of the optic nerve, neuritis and neuro-retinitis, retinal hemorrhages, connective tissue formation on the retina, central chorio-retinitis, choroiditis and simple glaucoma. In 27 patients they detected the opacity or veiling of the retina and papilla which was first described by Klein in the insane, and later confirmed by Schreber and Uhthoff. In addition to these changes they call especial attention to two new conditions: 1st, a disciform opacity of the macula lutea, and secondly, certain changes in the fovea. The first they describe as follows: "The region of the posterior pole over a circular or horizontally oval area (measuring about $1\frac{1}{2}$ disc diameters), ap-

pears more or less dull or lustreless, as though veiled with smoke. The change commences as a delicate veil at the edge of the area, and increases in intensity as the fovea is approached. In outspoken cases it appears as an almost uniform dull gray disc, with a narrow diaphanous periphery. The vessels in the area are not concealed, but do not stand out so distinctly and sharply as usual. The pigmentation of the region is either entirely concealed or decidedly obscured. The fovea centralis, if perceptible, appears as a dirty brownish red spot. As a rule the macula and foveal reflexes are absent." The remainder of the retina was usually clear, and the macular changes did not affect the visual acuity, nor produce any marked dazzling or hemeralopia. No distinct changes were formed in the retinal vessels. This appearance was found in 34 cases, or 6.6 per cent of those examined, and the authors considered it similar to the changes described by Klein and confirmed by Uhthoff. In 11 cases it was associated with the foveal change described below, and in seven with this and opacity of the papello and the surrounding tissues. Nine were cases of dementia ex parania, eight of dementia from no longer determinable psychoses, four of epileptic insanity, four of periodical mania, two each of dementia paralytica, circular insanity and imbecility, and one each of idiocy, melancholia and alcoholic insanity.

The foveal change was found in 42 cases, or 8.2 per cent of all. It consisted of a distinct yellow or pale yellow, sometimes shining spot, which was usually circular in form and occupied the center of the fovea. At times this spot was made up of several smaller spots, of a yellowish or yellowish red tinge, and the surrounding retina was usually obscured by a faint pigment veil, which faded away with the normal retina. In a few cases the condition was not so well marked, and probably represented earlier stages of the process. No scotoma could be detected in any of the visual fields, although the foveal region must have been unable to functionate, nor was the visual acuity seriously reduced, so far as this could be determined. They consider the macular change as an opacity of the fiber layers of the retina, while the foveal spots probably represent a degenerative process, which remains as a permanent alteration, and differs in this respect from the temporary spots seen after ordinary inflammations of the macula. The authors express the hope that their findings will stimulate others to careful examinations of the central part of the retina of insane cases elsewhere.

REVIEW.

The Pathology of Idiopathic Detachment of the Retina.—

By Arthur H. H. Sinclair, M. D., F. R. C. S., Ed. *Journal of Pathology and Bacteriology*, Vol. VII., No. 3, 1902, and printed in Laboratory Reports Royal College of Physicians, Edinburgh, Vol. VIII., No. 16, 1903. It is an established fact that detachment of the retina occurs in connection with morbid changes in the vitreous. Sinclair has demonstrated by experimentation that alteration of the vitreous may cause adhesions to form between it and the retina posteriorly, and cause detachment of the retina by subsequent contraction. This observer found also that the absorptive power of the choroid is very feeble, and accordingly he disputes the theory of Leber-Nordenson, which declares that idiopathic detachment of the retina is due to a process of diffusion of fluid from the vitreous, which settles beneath the retina. He did, however, conclusively prove that detachments were precipitated and distinctly augmented when a highly albuminous fluid was injected beneath the retina. Therefore, he assumes that idiopathic detachment of the retina is dependent upon affections of the choroidal circulation, whereby the osmotic properties of the vessels are interfered with and the collection of fluids is allowed to accumulate beneath the retina with its consequent detachment.

It is difficult to say whether the increase of post-retinal fluid is due to choroidal transudation or to diffusion from the vitreous. According to Sinclair's observations it is probable that it is due to the diffusion of vitreous fluid, because he found no rupture of the retina, neither was there excess of intraocular tension during the intervening stage of the detachment. An analysis of the post-retinal fluid in cases of detachment has shown that fluid to be highly albuminous, whereas, normal vitreous is composed almost entirely of water, and contains only a trace of solids. Also, as the transuded fluids found in cases of inflammation of serous surfaces have yielded greater quantities of albumin than when brought about by pressure as after ligature, it is safe to infer that the post-retinal fluid in detachment has been transuded from the choroidal vessels. Moreover, distinct inflammatory processes involving the choroid are commonly found associated with detachment of the retina.

The fact that changes in the vitreous often take place in eyes in which retinal detachment subsequently occurs cannot be taken as any proof that these changes cause detachment of the retina. Although they are often found together they are without doubt both dependent upon the uveal inflammation present.

Walter H. Jessop, M. B., F. R. C. S. **Some Points in the Pathology of and Prognosis in Glioma of the Retina, with Cases.**—

With the utmost conciseness Jessop reviews the literature of glioma of the retina, and analyzes the histories of several cases occurring in his own practice. He has embodied his records in an admirable paper which he presented as the presidential address in the Ophthalmological Section of the British Medical Association in July, 1901, and now published in the St. Bartholomew Hospital reports for 1903.

He considers that glioma probably commences as an alveolar condition with marked connective tissue stroma. That at first rosettes or balls of cells with a clear lumen are found, but as the tumor grows and degeneration begins, then occur finger or worm-like processes consisting of a mantle of cells surrounding the blood vessels. This is followed at times, even before the growth has reached beyond the eye, by loss of definite structure, and the growth assumes the form of a round-celled sarcoma. In all growths outside the eye the structure is that of a round-celled sarcoma. When the growth also invades or infiltrates the choroid or iris the structure consists simply of cells without any tendency to definite arrangement.

In his opinion the obscurity in which the understanding of the origin of this affection is surrounded cannot be cleared until cases can be seen and studied at an earlier period than that in which most cases have commonly been reported. In his own cases the youngest child was aged 13 months. The changes in most cases take place so rapidly that even the alveolar condition is soon lost and degeneration begins. The rosettes upon which Wintersteiner lays such stress are found chiefly in the early stage and only in the intra-ocular stage.

In his studies Jessop could not define the origin of glioma as taking place in the nuclear layers, because there was a marked dissimilarity between the cells of the new growth and those of the retinal layer; and because of the slight reaction produced by the presence of the tumor cells in the retina. Following Cohnheim he thinks the origin is from some developmental embryonic tissue. This could account for both eyes being affected so frequently (20 per cent), and in such cases for the growth starting in both eyes separately.

He finds no reason for supposing this tumor to be a carcinoma, either pathologically or clinically; on the contrary, his specimens seem to indicate it to be a sarcoma and it is to be classified as an endothelioma, as the retina surely contains sufficient endothelial tissue to give rise to such a tumor.

He does not attempt, from his own results, to establish a rule as to the prognosis, for in his six cases the intraocular gave 100 per cent of recoveries after the removal of the eye, and the extraocular only 25 per cent. Nevertheless he safely presages that success follows the intraocular cases, while it is seldom that any operative procedure can save the patient's life in the extraocular, and there will generally be a recurrence of the malady. As recurrence takes place rapidly, there is little to fear if the orbit is healthy three months after the excision of the globe. So far, no case is reported in which glioma has undergone a spontaneous cure. Hence the neglected or delayed cases must have a fatal issue. In enucleating the globe it is important that the nerve should be excised as far back as possible.

Pathogenesis of Glaucoma.—Clinical and Experimental Researches by Uribe-Troncoso of Mexico. *Annales D'Oculistique*, Dec., 1901.—In an exhaustive paper contributed to *Annales D'Oculistique*, Uribe-Troncoso of Mexico publishes his clinical and experimental researches in the pathogenesis of glaucoma. He has divided his studies into the following chapters: Primary or Essential; Simple Chronic; Secondary and Experimental Glaucoma; the Action of Iridectomy, etc.

In the analysis of the literature upon the subject of glaucoma, the author is led to the belief that the studies of other observers have not been complete. He has accordingly studied carefully in a series of cases the *chemical* composition of the aqueous humor extracted from the anterior chamber of eyes operated upon by him for the relief of this malady.

He finds the density of the aqueous humor in these cases higher than the degrees obtained by other observers in the estimation of the normal fluid, and in his own cases of cataract or of interstitial keratitis. The quantity of mineral matter was accordingly increased in the original fluid and markedly reduced in the fluid reproduced after incision. The results of the estimation of the organic elements are most startling. He finds that while in cases of serous iritis, albumin was present to only 0.35 per cent, in glaucoma it was seen as high as 30 per cent, and that albumin was present in cataractous cases only after operation. The albumin has appeared in small masses not only in the primitive but also in the reproduced humor, in which indeed the quantity of organic matter was excessive.

The author concludes from his observations that these abnormal elements in the aqueous humor must be indicative of serious changes which have taken place in the walls of the blood vessels by reason

of which the albuminoid elements readily pass through them and permeate the ocular tissues. He attaches also much importance to the changes in the chemical composition of the humor. His researches, while of distinct value, are offered as suggestions for and pointing towards further investigation in the pathogenesis of this malady, which is even today shrouded in great obscurity.

The results in the series of his investigations so constantly agree that the author believes that all the clinical manifestations in glaucoma are due to exosmotic processes, whereby the aqueous humor is rendered albuminous. The filtration paths are unable to accommodate the increased density of the fluid, whereupon obstruction and retention occur with ensuing hypertension. These vascular changes are arteriosclerotic in character and are analogous to the vascular changes seen in interstitial nephritis. The actual quantity of humor obtained was always less than that obtained in observations in the normal state.

Without doubt the vasomotor nervous mechanism is disturbed to such a degree that the dialbuminosis is greatly favored. It is reasonable to suspect that the palliation secured by the operations on the cervical sympathetic, so recently exploited, depends upon the withdrawal of the abnormal influences exerted by the sympathetic system.

Influenced by these observations, the author successively studied the symptoms of the malady and supports his theory by the clinical facts elicited. He also conducted a series of experimentations upon rabbits. Injections of egg-albumin and of sodium chlorid into the anterior chamber gave rise to a group of symptoms dependent upon the retention of the intraocular fluids, and although the filtration paths remained open, it was evident that there had been no hypersecretion of the aqueous humor. The symptoms subsided on the disappearance of the injected fluids. Sodium chlorid was eliminated more rapidly than albumin.

BURTON CHANCE.

In the symposium on headache at the semi-centennial celebration of the founding of the Dubuque Medical Society, held at Dubuque, Ia., in June, Dr. Casey Wood, of Chicago, presented the ocular aspect of headache. Dr. Norval Pierce, of Chicago, read a paper on nasal headache, Dr. Hugh Patrick, of Chicago, gave an admirable address on migraine. Dr. A. C. Croftan, of Chicago, presented the subject of headache due to vicious metabolic changes, while Dr. J. S. Lewis, of Dubuque, spoke of headache from the standpoint of the reproductive organs.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XII, No. 7.

CHICAGO, JULY, 1903.

NEW SERIES.

REPORTS OF SOCIETIES.

EXTRACTS FROM THE MINUTES OF THE SOCIETY OF
OPHTHALMOLOGISTS AND OTOLOGISTS, WASH-
INGTON, D. C., MARCH 20, 1903.

REPORTED BY DR. W. N. SUTER, SECRETARY.

Dr. Burnett reported a case of a man who, under the delusion arising from a prolonged spree, had inflicted, a few days previous, a severe *injury to his left eye with a lead pencil*. The pencil had penetrated the orbit at the inner angle; the eyeball showed no signs of injury either externally or ophthalmoscopically. There was ptosis, and the motion of the eyeball was absolutely lost, as was also vision. Dr. Burnett said he had not yet been able to decide whether the loss of vision was due to hemorrhage or to rupture of the optic nerve.

Dr. Butler exhibited a patient whom he had shown at a previous meeting, the dislocated lens of one eye having, at that time, recently moved from the vitreous into the anterior chamber. When the patient was brought to operation, on the day after he had been previously shown to the society, the lens had again disappeared in the vitreous. By suitable manipulation of the patient's head the lens was gotten into the anterior chamber, where it was held by a stop-needle, and was finally extracted through an incision made at the lower border of the cornea. Recovery was rapid and uneventful.

Dr. Shute *reported his experiences with Cuprol, Protargol and Argyrol*. A young woman from Virginia had come to him with trachomatous granulations and extensive pannus. As she refused operative treatment he gave her a 10 per cent solution of cuprol to be used three times a day. At the end of three weeks there was marked improvement, and after three months she came to Dr. Shute's office, and he was surprised to find all pannus gone, and only one or two granulations on the lower lid; none on the upper lid. As to protargol he had found it very unsatisfactory—painful and productive of

congestion. He had found argyrol very beneficial in ophthalmia neonatorum. He had recently treated 17 cases of this affection in one of the city hospitals. In the last seven cases argyrol had been used, and in all the pus had become inappreciable in from 48 to 72 hours, whereas, in the earlier cases, in which this drug had not been used, the course of the disease was slow. Credé's method had been used in all cases.

Dr. Burnett said he was unable to account for the large number of cases following the application of Credé's method. He thought it probable that this had not been properly applied.

Dr. Belt asked whether gonococci had been found in the pus.

Dr. Shute, referring to Dr. Burnett's criticism, said he had given explicit instructions as to the application of the nitrate of silver applications, but he had not personally seen them applied. He said gonococci had been found in two cases.

April 17th, 1903.—Dr. Malone reported a case of a boy eight years of age who was *shot in the left eye* last August with an arrow. Dr. Malone first saw the case in October. At this time there was a scar in the ciliary region with inclusion of the iris, but no inflammation. The patient had been brought to Dr. Malone on account of recurrent iritis in the right eye. At this time V was 18/20 in the right eye and 18/50 in the left eye. Dr. Malone, after seeing the patient in several attacks, called Dr. Burnett in consultation. They both agreed that at that time enucleation of the left eye was not advisable. Later they noticed a cyst in the iris of the left eye. The cyst was excised March 13th, 1903. The eye remained in an unhealthy condition, vision failed, and tension became subnormal. On April 7th the eye was enucleated; V (right eye), 18/50; no iritis since enucleation (10 days).

Dr. Burnett reported the progress of the case of *self-inflicted injury to the orbit* which he had reported at the last meeting. On Sunday last ptosis had disappeared, there was some motion of the eyeball, and vision was 5/25. The optic nerve was distinctly whiter than normal. In view of the improvement in vision, he attributed the temporary blindness to hemorrhage, and not to rupture of the optic nerve, as he had at first been inclined to do.

Dr. Wilmer reported a case of *complete temporary blindness in a girl eight years of age from a blow on the nose with a baseball bat*. There was no unconsciousness after the injury, and it was three days later that failure of vision was noticed. The right eye first failed and later the left. When Dr. Wilmer saw her, nine days after the

injury, there was marked proptosis and retraction of upper lids, complete blindness, and no pupillary reaction. Ophthalmoscopy showed double optic neuritis. She was put upon iodides and ice applications were made over the eyes. In two hours she could see a light, and improvement continued until in three weeks, when she left the hospital, V was 3/200; no proptosis. The pathology was the interesting feature—whether there had been a fracture near the chiasm with hemorrhage, or whether the double neuritis was the result of concussion. Dr. McKimmie thought the force of the blow was conveyed through the nose to the sphenoid where a fracture had occurred. Several of the other members present expressed their agreement with this opinion.

Dr. Belt read a paper on the *treatment of soft (or juvenile) cataracts*. After reviewing the text-book recommendations of discission and suction, he spoke of those cataracts which fail to absorb after repeated needlings. He had come to the conclusion that it was better to extract such cataracts than to waste time with many repetitions of the needling process. He was more and more adopting the habit of extracting this class of cataracts through a small incision made with the keratome, a Daviel curette being introduced into the anterior chamber to facilitate the outflow of the soft lens. The extraction was usually preceded by a free needling five or six days earlier. In the discussion Dr. Burnett said he preferred the more tedious process of needling, and that in those cases in which extraction was necessary, he did it without preliminary needling.

May 22d, 1903.—Dr. Wilmer reported the progress of the child struck on the nose with a baseball bat, of whom he had spoken at the previous meeting. Complete recovery with normal vision and fields for colors had taken place. The temporal sides of the nerves were slightly whiter than normal.

Dr. Belt reported a case of a *lime-burn of the conjunctiva and cornea* which had occurred one day previous. The accident resulted from the patient receiving in his conjunctival sac a mass of fresh plaster. A physician had seen the case and had extracted some of the plaster, but a good deal of this still remained in the conjunctival sac when Dr. Belt saw the case. He had much difficulty in removing it all, but by softening it in dilute vinegar on a cotton-wrapped probe, he finally succeeded. The cornea was opaque at the first examination but on the following day it had cleared so that he could see the iris and pupil. At this time both lids were adherent. He tore these loose and applied oil. He asked if any of

the members could make suggestions as to how best to avoid the formation of symblepharon. Dr. Butler suggested the use of a sterilized pellicle of an egg, which had been recommended, but said that personally he had found olive oil efficient.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting in Colorado Springs. Dr. Edward Jackson presiding.

Dr. Friedmann read a paper detailing his observations at a recent visit to the Berlin eye clinics.

Dr. Patterson read a similar paper on visits to Moorfields, London, strolls along the Rhine and the eye clinics of Paris.

Dr. Black spoke favorably of Casey Woods' recent utterances concerning the value of *Buller's method of suturing each canaliculus* as a preliminary to cataract extraction where there is blennorrhœa of the lachrymal sac.

Dr. Marburg reported a case of *anterior uveitis non-specific*, with general corneal infiltration and minus tension, which showed an increase in tension to nearly normal after two applications of 6 per cent iodo-vasogen. His report was given as a confirmation of Duane's claim that the tension of the eye in such cases is frequently improved by the remedy. Dr. Black recommended his method of using atropin in cases rebellious to its action as ordinarily used. He advised that according to the necessities of the case, the drug may be used in the conjunctival sac either in the solid form or in solution. He then applies an ordinary sponge electrode, one and one-half inches in diameter, to the closed eye lid, this electrode being connected with the negative pole of a galvanic battery, a similar sponge electrode connected with the positive pole being placed back of the ear. Three milliamperes of current is then passed for five minutes. He claims to obtain more marked dilatation of the pupil than by any other means, and in a speedier manner.

Dr. Neepor reported a case of rebellious *dendritic keratitis* which had increased under the actual cautery, carbolic acid and tr. iodine used locally in the order enumerated, which quickly improved under 20 grain doses of quinine. The patient had no malarial infection, having resided in Colorado for fifteen years. No examination of the blood had been made.

Dr. Black spoke in verification of the claims heretofore made that Dionin increases lymphatic action and resolution in iritis and corneal

ulcers, particularly of the recurrent variety. He thought in corneal scars he had noted a more rapid absorption following its employment. He suggests its employment in solution and in powder, though admitting the latter method caused much discomfort for one or two hours following its use.

J. A. PATTERSON, Sec'y.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Friday, May 8, 1903.

W. Lang, F. R. C. S., president, in the chair.

Drs. A. Paine and F. J. Poynton read a paper on *Rheumatic Iritis*, in which they endeavored to establish the identity of the pathological changes in rheumatic iritis with those occurring in other accepted rheumatic affections. The diplococcus of rheumatism developing in the tissues and cells rather than in the fluid exudate rendered the identification of micro-organisms in fluids obtained by paracentesis of the anterior chamber unsatisfactory, while the opportunities of examining the iris in the acute phase of the inflammation in the human subject did not often occur. The specimens therefore of iritis exhibited which showed the diplococcus in situ had been produced in the rabbit. The distribution of the organisms was similar to that occurring in synovial membranes showing dense clumps.

Observations were made by the president, Messrs. Hartridge and Holmes Spicer in regard to the extreme rarity of iritis as a complication of true acute rheumatism, and of the probability that most of the so-called cases of rheumatic iritis had really their origin in gonorrhœa.

Dr. Poynton said in reply that the special micro-organism when present was easy to find, but he was not sanguine about finding them in portions of iris removed in the quiescent period, as the subsidence of active inflammation was dependent on their destruction or reduction to a state of latency.

Mr. W. H. H. Jessop described two cases of *tuberculous choroiditis* associated with conjunctival tubercle. The first was that of a girl aged nine, who had a round, smooth mass on the conjunctiva which reached nearly to the limbus of the cornea. This was incised and tubercle bacilli were obtained from it. The retina was detached with two masses obscuring the disc. The eye recovered with vision of 6/18.

The second case was a woman aged twenty-three, who had tubercular disease of the breast and a strong family history of tubercle. While under observation masses in the choroid were seen to spread from the center towards the periphery, leaving but little trace behind

them, and now, upwards of three years after, the patient has recovered with good vision.

Mr. Sydney Stephenson said that tubercle of the choroid, like some other conditions regarded as rare, ceased to be so when systematically looked for. Among 119 cases of tuberculosis he had examined in surgical wards, he had found about 10 per cent in which the choroid was affected. He endorsed Mr. H. Jessop's observations as to the absence of residual pigment and vitreous opacities.

Mr. Juler mentioned one case that had recovered under local treatment alone. Remarks were also made by Messrs. Johnson Taylor and Holmes Spicer.

Mr. A. F. MacCallan reported five cases of *glaucoma in which adrenalin caused increase of tension*. The increase of tension occurred in all the cases consequent on the use of adrenalin in eyes which had already had marked symptoms of glaucoma. Except in these cases this was not the invariable consequence of the use of adrenalin, but the writer had seen two cases in which retinal hemorrhage had occurred after its use. Other cases in which it had been used showed no change in tension or in the fundus, but the vascular constriction produced by adrenalin appeared to prevent the absorption of other drugs, such as myotics.

Mr. Jessop spoke of the pain and increased tension produced by adrenalin in scleritis and episcleritis. He found that engorgement followed constriction of the vessels.

Mr. J. H. Parsons thought that the effect of adrenalin was by no means uniform. Complications following its use were probably due to dilatation of collateral or deep seated vessels and reactionary dilatation of the superficial ones after the initial contraction had subsided. Remarks were also made by Messrs. Harman, Holmes Spicer and Johnson Taylor.

Dr. E. Donaldson communicated a case of *proptosis and deformity of the head* in a male child aged two and one-half years, the youngest of three. The eye had several times become dislocated forwards. There was no defect in other special sense or intelligence. There was slight horizontal nystagmus, but the lids covered the eyes during sleep. There was no pulsation, but the globes could not be pressed back. So far as could be made out with the finger, there was no deformity of the orbital plate. The vision was defective, the optic discs being pale, but the corneae were clear. The case was similar to one shown to the Society in 1894. The shallowness of the orbits being due to premature synostosis as pointed out by Swanzy.

C. DEVEREUX MARSHALL, F. R. C. S.

XIV. INTERNATIONAL MEDICAL CONGRESS, MADRID,
APRIL 23-30, 1903.

SECTION OF OPHTHALMOLOGY.

Reported by Menacho, of Barcelona. Translated by Dr. Albert B. Hale, Chicago.

Dr. Albitos (Madrid) opened the session. Menacho (Barcelona) proposed Fuchs (Vienna) for president (of the day) and Antonelli (Paris) secretary.

Castresana (Madrid) read the first paper:

Surgical Treatment of Diseases of the Lacrymal Passages. He divided the subject into dacryocystitis acuta, perieystitis or prelacrymal tumor, dacryocystitis mucosa, dacryocystitis purulenta. Treatment is largely surgical, dilatation, injections, sounds. He is somewhat opposed to large sounds or to great force. In purulent dacryocystitis he favors extirpation, preferring the cautery method; but excision with curettage are also practiced.

Lapersonne y Rochon-Dunigneaud (Paris) read a paper on the same subject, elaborating of etiology and pathology. They discuss electrolysis, Stilling's knife, curettage, thermocautery, dilatation with sounds, extirpation.

La Grange (Bordeaux) said he had used electrolysis with great success, never using more than 10 m. amperes.

Blanco (Valencia) believed in dilation with small sounds, electrolysis before extirpation.

Terson (Paris) divided his cases into two classes: the infected, and the non-infected (nonsuppurating); the latter again into hypersecretion and hyposecretion. Hypersecretion he cures by extirpation of the lacrymal gland (de Wecker). Other cases by dilatation. Silver salts injected are of service.

Jocqs (Paris). In perieystitis a cure is possible without extirpation.

Santos Fernandez (Habana) has seen benefit from electrolysis.

Würdemann (Milwaukee) declares it necessary to treat the nose as well. In America silver salts (and protargol) are of value.

Suarez de Mendoza (Paris) likes electrolysis, six m. amperes. He emphasizes three points: (1) To open the canaliculus properly. (2) To treat the nasal mucous membrane. (3) To use sounds graduated at very small intervals.

Dor (Lyons) prefers large sounds (Weber).

Caraet (Barcelona) extirpates the sac, or uses the cautery.

Bloch (Ratisbon) advises scarification of sac by Stilling's knife.

Antonelli (Paris) tries the potency of the passage (especially in children) by injection of colored fluid (fluorescin). He likes pro-targol bougies.

Gad (Copenhagen) at times uses a sound from the nose up.

Barraquer (Barcelona) advises antiseptis and the use of injections of formal 1.100.

Jessop (London) recommends bacteriologic examination of secretion and likes injections of sodium chloride. He was the first to employ electrolysis, but has now abandoned it.

Marquez (Madrid) injects one drop of a strong Ag. NO₃ solution, using therefore a specially constructed syringe.

Wieden Portillo (Valencia) reported a case of myoma of the passage, expelled after electrolysis.

Castresana (Madrid) says extirpation by knife of sac is better than by paste.

Anatomy of the Fundus of the Orbit and of the Sphenoidal Linus. Barraquer (Barcelona). The orbit is supplied by the body and wings of the sphenoid with three sides and three angles. (The description is purely anatomical.)

Anatomic Arrangement of the Nasal Canal in the Negro, Explaining his Lessened Disposition to Disease of the Lacrymal Passage. Santos Fernandez (Habana) draws the following conclusions: (1) The nasal canal of the white is longer and more tortuous and narrower, and therefore more liable to disease. (2) The nasal canal of the negro is straighter and broader, and therefore disease is easier overcome.

Necessity for Unifying Methods for Noting Muscular Anomalies. Howe (Buffalo) concludes: (1) The numeration of prisms differs in each country. (2) There is confusion in using prisms to diagnosticate static conditions of muscles and consequently confusion in results. (3) The same confusion in diagnosing dynamic muscular conditions. (4) There is confusion in different countries in expressing muscular anomalies.

Photographic Method of Measuring Lateral Excursions of the Eyes. Howe (Buffalo) concludes: (1) By showing various methods. (2) Demonstration of his apparatus. (3) Results on a normal eye. (a) By a small arc. (b) By a broad arc. (c) Adduction greater than abduction. (4) Demonstration of photograms. (5) In view of the confusion existing it is advisable to establish an international committee to secure uniformity in expressing a measure of muscular anomalies.

Principles and Methods of Determining Function of the Lacrymal

Glands. Schirmer (Griefswald) concludes: (1) Functional examination of the gland should be based on result of reflex irritation. (2) The quantity of secretion during a given time, or time required to produce a given quantity, should be the unit. (3) Thus a diminution may be measured, but an increase is less determinable.

Wicherkiewicz (Krakaw) presided.

Jessop (London) read Landolt's paper: *Necessity for a Unification of Optometric Scales.* (1) Definition of visual acuity. (2) Principles in its determination. (3) Uniformity in measurement. (4) Progression of degree of acuity represented by optometric scales. (5) Distance at which examination is made. (6) Color of type and adjustment of scale. (7) Illumination. (8) Form of a universal test chart. Snellen's principles should be followed, but the opened circle should be preferred; no less than five meters should be used; result expressed in decimals; not too much light used, black on white ground with Aër or electric light.

Cuevas (Madrid) covered the same subject, with these conclusions showing the need of unification according to Snellen's principles. The chart must be of universal applicability (consequently Landolt's broken circle). Five meters is the most practical distance, the illumination must be constant, preferably artificial; gradations must be exact, and there should be an intermediate number between one and two; but if less than one is readable, the distance may be lessened. The measurement of the near visual acuity is not necessary, since other factors are involved. The sun figure for astigmatism is not necessary, since skiascopy is a better method. Transparent type and some in colors are preferable.

Presas (Barcelona) reached practically the same conclusions.

Antonelli insisted on uniformity of examination by every observer.

Jessop (London) congratulated Presas on the new word *goni-optica*. The *minimum separable* is what is measured, not the *minimum sensible*. Landolt's test is the best.

LaGrange (Bordeaux) is skeptical about the practical need of such exactions. Each case must be measured by itself.

Blanco (Valencia) thinks that a chart must be usable for children and illiterate as well. For some persons the usual visual angle is too small, for others too large. Distinction is made between clinical and physiologic examination.

Aguilora (Granada) said that Cuevas' scale was not geometrically perfect; Green's scale was better. He preferred the fraction in expressing decimal acuity.

Marquez (Madrid) would select a system in harmony with dioptric nomenclature, such as the inverse relation I — F.

Cuevas responded that he wished the Congress to adopt some scale, either his or any other.

Menacho (Barcelona) suggested that the Paris, 1900, Committee be asked to report. The question was scientific and practical, and must be answered in both directions.

Sclerectomy. Blanco (Valencia) at one time excised all eye balls showing high grade of staphyloma, but of late he has performed anterior sclerectomy: this is done between inferior and external rectus, allowing vitreous to escape and establishing a filtration from interior of globe into conjunctival sac, the conjunctiva being sutured over the wound. Such an operation is applicable to absolute glaucomas and other conditions where extirpation is to be avoided.

Santos Fernandez (Habana) opposed the operation. Hypertomia can be combated by pilocarpin, otherwise enucleation is necessary.

Blanco replied that infection of vitreous can be avoided by strict antisepsis.

Treatment of Secondary Glaucoma due to Iritic Adhesions (anterior synechiae). Reina Martinez (Madrid) laid down the rule to destroy the iritic adhesions wherever possible. This is better than iridectomy or miotics.

Antonelli (Paris) advocated the knife of Vincentis for the operation, as it avoids escape of aqueous.

Menacho (Barcelona) uses a very fine Graefe knife.

Hemeralopia and Amaurosis Hysterica Treated by Physiologic Horse Serum. Santos Fernandez (Habana) was enthusiastic for his results in this method.

Barrequer (Barcelona) questioned any cure on an hysterical subject.

Reina (Madrid) thought much of the cure was due to suggestion.

Strabismus Treated by the Advancement Operation. Jocs (Paris) seizes a conjunctival fold above the muscle through which he passes a double armed thread tangential; then he incises the conjunctiva vertically, seizes the tendon in forceps and cuts it without using the hook. Then without releasing the muscle he inserts both ends of the thread through muscle, capsule and conjunctiva; they are then tied whereby the tendon is advanced toward the cornea. The suture is left five or six days. Tenotomy of antagonist may be practiced, if advisable.

LaGrange (Bordeaux) has never tried the plan, but admires it.

Menacho (Barcelona) admired the operation, but criticized its lack of dosage.

Swanez de Mendoza (Paris) feared a too great conjunctival puckering.

Blanco (Valencia) referred to his graduated advancement forceps, with which he can measure the advancement.

Joeqs, in reply, stated that practically there was little conjunctival puckering and that the amount of advancement could be estimated with relative accuracy.

Herpes Corneae, Zona Ophthalmica and Keratitis Neuroparalytica, clinically considered. Menacho (Barcelona) said that these manifestations occurred in the ophthalmic branch of the fifth nerve. Their essential character was as yet unknown, although it is associated with vasomotor and sensitive alterations. Zoster and zosteriform eruptions are not the same. Pseudo zona is the link uniting corneal herpes and neuroparalytic keratitis. The tissue in which the manifestation develops probably depends upon the portion of the ophthalmic branch involved: in the ciliary nerves, herpes corneae: pseudo zona, if the nasal branch is affected: keratitis neuroparalytica from the ophthalmic ganglion.

Antonelli occupied the chair. Reina presided while the first paper was read.

Neuritis Optica in the Course of Acute Infections. Antonelli reached the following conclusions: (1) All infections (including constitutional) diseases may attack the optic nerve. (2) Influenza shows either a papillitis or neuroretinitis or retrobulbar neuritis: as a toxic infection. (3) Syphilis, rarely in the acute, commonly in the chronic stage, usually shows itself as subacute retrobulbar neuritis. (4) Typhoid (intestinal diseases) rarely has neuritis, but it is recorded. (5) Scarlet fever, smallpox, variola, malaria, diphtheria, erysipelas, polineuritis (beri beri), meningitis, rheumatism, purpura typhus, cholera, rabies roseola, malignant pustule, lepra—all may cause neuritis, usually of a bilateral type. This shows that the optic nerve is quite susceptible. Prognosis is grave, but hopeful. Treatment must avoid depressant, the general disease must be overcome, but strychnine is of great service.

Marquez reported a case from gastrointestinal affection that ran a rapid course, ending in blindness, though the patient quickly recovered his general health. His opinion was that no direct prognostic relationship existed between the disease and the neuritis.

Samdille (Nantes) in examining optic nerves after death from typhoid, rarely saw inflammation there.

Barraquer (Barcelona) has seen one abscess in smallpox extending from the lid and involving the optic nerve.

Santos Fernandez (Habana) would add yellow fever to the list.

Wicherkiewicz (Krakaw) would add La Grippe.

Blanco (Valencia) Otitis media.

La Grange (Bordeaux) would divide cases into those caused by bacteria and those by toxins.

Gradaille (Caruna) saw a case from dental disease.

Suarez de Mendoza (Paris) favors pilocarpin sweats.

Saurdille (Nantes) thinks the disadvantages of pilocarpin outweigh its advantages.

Baro (Madrid) and Wicherkiewicz have seen only good in pilocarpin.

Suarez de Mendoza (Paris) insisted that pilocarpin was a grand remedy.

Suarez de Mendoza (Paris) *Strabismus and its Treatment*, insisted on the advantage of systematically distributing the correction between both eyes. He is not an enthusiast for advancement.

Fage (Amiens) thinks that by advancement with tenotomy one operation often suffices, using orthoptic exercises afterwards.

La Grange (Bordeaux) supports Suarez de Mendoza—a slight tenotomy is often better, especially cosmetically.

Jocqs (Paris) prefers advancement.

Terson (Paris) thinks that only in alternating convergent strabismus with good bilateral vision is double simultaneous tenotomy advisable.

Caraet (Barcelona) much prefers advancement.

La Grange (Bordeaux) likes to operate only both eyes, chiefly for the reason that the cosmetic results are thereby better.

Menacho (Barcelona) studies each case by itself. Slight cases do well with simple advancement; more pronounced cases demand tenotomy as well.

Castresana (Madrid) tenotomizes in pronounced cases; in very bad cases he advances.

Jocqs (Paris) added that in young children operation could often be avoided by correcting refraction.

In discussing the paper of Wicherkiewicz of *Glaucoma Consecutive to Operation for Cataract*, Saurdille (Nantes) said that probably there was a disposition to glaucoma in such cases.

Castresana (Madrid) advised selecting simple or combined operation according to tension.

Reina (Madrid) ascribes the glaucoma to incarceration of iris. Iridectomy will not prevent it, as it occurs chiefly in these cases.

Baro (Madrid) agrees with Reina. Treatment is to relieve the incarcerated iris, if possible, sclerotomy and miotics, massage.

Menacho (Barcelona) reported of a case of chronic glaucoma OU— with post operative cataract OD subsequent to iridectomy, OU. Removal of the lens OD preserved this eye—in the OS vision was lost.

Caract (Barcelona) differed from Reina.

Wicherkiewicz ended by saying that the chief treatment was preventive. For that reason he used no mydriatic before operating—rather a miotic. Only after some days did he use scopolamin to avoid posterior synechiae. If glaucoma develops he used drops of eserine 1.100, pilocarpin 2.100, cocain 1.100.

Operation for Total Staphyloma of the Cornea. Leroy (Paris) proposes with Beers or Graefe knife to make a corneal section through to staphylomatous area so as to release the lens. The eye then allows the cornea to sink to a more natural level and after the staphyloma disappears, subsequent irregular tissue may be tattooed.

Blanco (Valencia) acknowledged that glaucoma in staphylomatous eyes was often due to presence of the lens, but not always. Iritic adhesions sometimes prevented restoration of cornea to the natural.

Wicherkiewicz (Krakaw) sutured the cornea with catgut before releasing the lens. He sometimes excised the cornea.

La Grange (Bordeaux) closed the corneal wound by traction on the outer and inner recti by means of a suture.

Leroy did not excise cornea. He thought that by releasing the lens, the cornea returned to a more natural shape, without excision.

FOURTH DAY, APRIL 28, 1903.

La Grange (Bordeaux) was the presiding officer of the day.

Blepharitis Ciliaris and its Dermatologic Classification. Terson (Paris) would divide cases clinically into the nonsuppurative and suppurative, the latter caused by micro-organismic invasion, the former being of two types, with dry crusts, or with moist, oily crusts.

Iridochoroiditis and Panophthalmitis following Meningitis Cerebrospinalis Gonococcica. Galezowski (Paris), read by Albitos (Madrid), concluded that (1) Iridochoroiditis and iritis with hypopyon may supervene on a gonorrhœal rheumatism. (2) Optic neuritis may be due to meningoencephalitis blennorrhagica. (3) These may be complicated by keratitis, pupillary occlusion, panophthalmitis, all of which can be treated only by constitutional means.

Adrenalin in Ophthalmology. Doctress Arrago y Marquez (Madrid) stated that the drug (1 or 1-5 .1000) produces an ischemia, marked if hypermia is superficial, affecting chiefly the smaller blood-vessels. It is usual preceding operations either instilled or injected, or to combat inflammations, or for esthetic purposes. It is to be avoided in deepseated lesions.

Reina (Madrid) compares adrenalin to O in arithmetic somewhat negative itself, but of great value in combination with other drugs.

Mansilla (Madrid) had had no effect on the iris from the drug.

Barraquer (Barcelona) had used it as adjuvant with good success in spring catarrh.

Terson (Paris) thought it should be avoided in corneal conditions.

Prognosis of Glioma Retinal after Operation. Jessop (London) bases his prognosis on eighty-three cases intra and extraocular. The intraocular cases (if neither the nerve nor the lamina cribrosa are invaded) turn out well. Cases of extraocular involvement are nearly hopeless.

The Severer Forms of Epithelioma of the Conjunctiva. Fage (Amiens) states that the usual form is rather benign, but if other tissues are once invaded the prognosis is grave.

Terson (Paris) thinks the presence of glycogen in the tumors, is a better guide to prognosis than is histologic examination.

Dor (Lyons) proposed that a committee be appointed to investigate the causes of blindness and means for its relief, this committee to be composed of members from different countries.

Local Action of Chlorhydrate of Codein on the Eye. Marquez (Madrid) compared codein with its homologue dionin and concludes that in 5.100 solutions its effect is similar but much weaker—vasodilatation, chemosis, local analgesia—and of only transient action.

Ocular Irrigation, with a New Instrument. Portillo (Valencia) is an advocate of thorough and excessive irrigation to inflamed conjunctivæ. An instrument for that purpose made by Luer, is a Desmarres elevator with perforations along its edge and a hollow handle.

Baro (Madrid) objected to use of great force in irrigation.

Blanco (Valencia) thought the method serviceable in trachoma.

Operations on Hemophiles. Block (Ratibon) stated the dangers of such patients and advised careful questioning of the history, especially in glaucomatous state.

Jessop (London) was presiding officer for the day.

Action of Drugs on Pupil, Accommodation and Intraocular Ten-

sion. Marquez (Madrid) reviewed the effect of atropin, dubuison, scopolamin, homatropin euphthalmin, cocain, as to mydriatic conditions.

Trachoma, its Etiology and Prophylaxis. Zapatero (Madrid) stated that trachoma avoided the extreme zones of the earth, it attacked chiefly young adults, made no distinction of race, but was encouraged by debility and conjunctival irritation, and was contagious. Its prophylaxis must be of a scientific, popular and charitable or legislative character.

Santos Fernandez (Habana) called attention to the immunity of negroes.

Reina (Madrid) said the (East) Indians were rarely attacked.

Zapatero (Madrid) asserted that climate had its influence.

Congenital Cyst of the Orbit with Microphthalmos. La Grange (Bordeaux) said that such a cyst was a diverticulum from the lacrymal apparatus: in this case the eye ball was pushed to one side and its growth prevented—an orbital angioma.

Treatment of Keratitis Suppurativa with Hypopyon by Subconjunctival Injections of Methylene Blue. Mansilla (Madrid) decides that subconjunctival injections of 1.1000 methylene blue are of great service in the above condition, as they stop the pain, overcome sepsis after a few injections, it may be repeated every three or four days; this is preferable to sublimate solution as less painful, or to the cautery as less destructive. Paracentesis must not be neglected, as it also helps the action of the drug. (In infected wounds after cataract the author has had good success by this method.)

Blanco (Madrid) alternates methylene blue injections with sodium chlorid.

Castasana (Madrid) would like a differentiation between mild and severe cases, before he accepted the above results.

Santos Fernandez (Habana) has had moderate success by subconjunctival injections. He thinks dirty hands are as often accountable for infection as dacryocystitis.

Reina (Madrid) divides corneal ulcers according to infection or non-infection of the tear passages.

Gadaille (Corena) disliked the blue stain of the drug.

Caraet (Barcelona) had used it with success.

La Grange (Bordeaux) preferred the cautery.

Aguilera (Granada) ditto.

Menacho (Barcelona) thought no claim was made for great superiority, only that this method was of service in many cases.

Antonelli (Paris) thought it might help to prevent paracentesis. Barranque (Barcelona) adhered to paracentesis.

Reclination of Cataract, with Instruments. Alberatti's (Modena) article read by Antonelli expressed the idea that the operation still had its place. His instrument was like a small spoon (curette) introduced through a discission wound.

Menacho (Barcelona) had performed the operation once, with success.

Fat Injections after Enucleation. Barroquer (Barcelona) advocated this method, advising the suturing of antagonistic recti above the socket.

Trichiosis (Total or Partial) Treated by Electrolysis. Burch (Gerona) was enthusiastic for electrolysis on the skin to drag back the cilia distorted inward by cicatrix of conjunctiva or tarsus. His induced scar is in the skin five to ten millimeters from the free edge. He reports five successful cases.

Castasana (Madrid) still preferred surgical methods.

Epithelioma Epibulbæ, with Extension and Cure. Caralt (Barcelona) reported a case in which the X-ray was faulty, but the method of Darier (excision?) stopped the growth.

Blanco (Valencia) explained a *Modification of Placidos Disc to determine corneal irregularities*. The face has a broad line across it—the back a corresponding line the axis of which is indicated on a scale. By revolving the disc the axes may be determined.

Blanco (Valencia) showed his device for restoration of the external canthus—modified from Aaener. (See *Archives de Optalmologia*, April, 1903.)

Jequirity in Ophthalmology. Baro (Madrid) prefers the powdered jequirity to any other method.

Vidaur (San Sebastian) restricts its use to the dry stage of corneal opacity.

Menacho (Barcelona) also preferred the powder.

Treatment of Disease of the Lacrymal Passage. May (Madrid) advocated sounds, and advised instruction to patients.

Stereoscopic Binocular Vision. Presas (Madrid) compared the various stereoscopes and the muscular action produced in effecting binocular vision through them.

Orbital Infection of Dental Origin. Gradaille (Coruna) acknowledged the fact of such infection, either by continuity, or by reflex action, or by toxic (blood) influences.

Permanent Catheterization of the Lacrymal Passage. Colpas (Gra-

nada) advocated the use of Stilling's knife, three Bowman's sound followed by a silk thread, which is left in for permanent drainage and for its capillary influence in introducing antiseptic medication along the canal. He claims successes by this method.

(The presiding officer, Dr. Albitos, nominated as a committee to investigate the cause of blindness in Spain, Menacho, Reina and Marquez.)

Amaurosis Fugax due to Quinin. Wicherkiewicz (Krakaw) reported a case in a child two years, nine months old, who had taken about two grams of euquinin in three days. There was total blindness, pale disc, narrow arteries. Recovery on cessation of drug, and the use of nitrite of amyl.

Conjunctivitis Granulosa Treated by Expression. Portillo (Valencia) states that expression by the Knapp forceps has found little recognition in Spain, and he wishes to popularize it. He also showed a modified Kuhnt forceps, which he thinks excellent.

Trachoma Epidemic in Buffalo.—News from Buffalo states that trachoma is epidemic in that city. According to the statement of a Marine Hospital official over 100 cases of the disease has been found among the employes of the Lackawanna Steel & Iron Company. It is believed that the disease was brought to Buffalo by foreigners coming by way of Canada.—*American Medicine.*

Ophthalmia Neonatorum.—At a meeting of the Obstetrical Society of London to be held at 20 Hanover Square, W., on Wednesday, July 1st, a discussion on ophthalmia neonatorum will be opened by Dr. Sydney Stephenson, introduced by Dr. W. S. A. Griffith. The honorable secretaries will be glad to hear from any who, not being Fellows of the Society, desire to take part in the discussion.—*British Med. Jour.*

The next annual meeting of the Academy of Ophthalmology and Oto-Laryngology (formerly the Western Ophthalmologic and Oto-Laryngologic Association) will occur in Denver, Colo., in August, 1904, the exact date being Wednesday, Thursday and Friday, August 24, 25, 26, 1904. Dr. Edward Jackson, Denver, Colo., president; Dr. Derriek T. Vail, 4 W. 7th street, Cincinnati, O., secretary.

NOTES AND NEWS.

ITEMS FOR THIS DEPARTMENT SHOULD BE SENT TO
DR. BROWN PUSEY, 31 WASHINGTON ST., CHICAGO.

Dr. R. A. Reeve, of Toronto, will spend the summer in England.

Dr. Frank Allport has been elected clinical professor of ophthalmology and otology in the medical department of Northwestern University, Chicago.

Dr. Thomas McDavitt, of St. Paul, Minn., has been elected secretary of the Minnesota State Medical Society.

Dr. Frank Allport, of Chicago, has been appointed one of the trustees of the Illinois Eye and Ear Infirmary.

Dr. W. L. Ballenger has been elected professor of otology, rhinology and laryngology in the College of Physicians and Surgeons, Chicago.

The Chicago Eye, Ear, Nose & Throat College Hospital has instituted an internship with service of 18 months, at a recent examination for same, Dr. H. E. Goldberger, P. & S., 1903, was awarded the position.

The American Medical Association resolutions concerning the examination of school children's eyes and ears have been adopted by the following societies: The Southwestern Medical Association, the Delaware State Medical Society, the Montana State Medical Society, the Minnesota State Medical Society, the Michigan State Medical Society.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XII. No. 8. CHICAGO, AUGUST, 1903. NEW SERIES.

ORIGINAL ARTICLES.

HOW SHALL WE OPEN THE CAPSULE.

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(Illustrated.)

Having read with interest your report in the May RECORD of the discussion of Capsulotomy at the New Orleans meeting, I beg to add a few words, not that I expect to convert any one to my opinions, as every operator, quite properly, prefers the methods in which he has become expert. Norris, in speaking of "opening the capsule," remarks: "This is probably the most difficult and uncertain part of every cataract operation, for, while any sharp instrument carried across it will cause a rupture, or tear, it is excessively difficult, and, in fact, in most cases impossible to make this of any desired shape....the very great diversity of practice among different operators is convincing proof that none of our present methods have arrived at any considerable certainty of result."

The ideal capsulotomy would give an easy delivery of the lens, and a clear pupil with the least risk of injury to the eye. The last should be first. The accidents imminent in capsulotomy are injury to the iris, or Descemet's membrane, dislocation of the lens into the vitreous, and the carrying into the eye bacteria by the cystotome: in fact, the cystotome may be the chief source of danger in every cataract extraction. I seldom use it, partly on this account and partly because I get better results by the method which I shall now describe, viz., the opening of the cornea and capsule by the same incision.

My technic is as follows: Having dilated the pupil, I enter the cataract knife in the clear corneal margin at the equator. Advancing on a plane declining ten degrees from the horizontal, I transfix the

capsule, then raise the point of the knife and counter puncture the cornea two or three mm. above the equator, and complete the corneal flap in its clear margin. Unless the capsule be unusually brittle the knife will pass up under it to the pupillary margin, cutting a smooth central flap about the size of the ordinary pupil, which will be

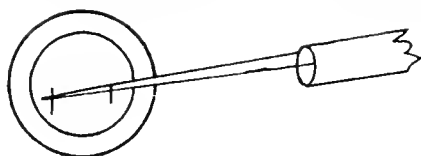


FIG. 1.

enlarged by the passage of the lens. This large flap will naturally fall to the lower segment of the capsule, leaving a clear pupil. This operation seems to me to be so safe, so complete, and withal so easily made, that I cannot comprehend why it has not been commonly

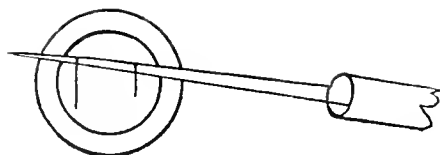


FIG. 2.

adopted. Of course, there are cases that require the forceps or cystotome, especially the contracted pupil, requiring an iridectomy, but even in this class a central vertical slit can be made in the same way, which will often be sufficient for the escape of the lens after

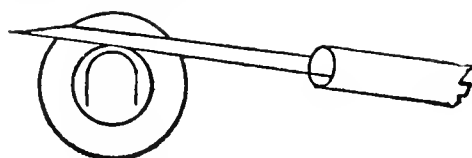


FIG. 3.

the completion of the iridectomy. I believe my results have been unusually good. "My last hundred extractions," pardon the chestnut, have not shown a case of sepsis, iritis, or luxation, and only eight cases have returned for the secondary operation.

INTERSTITIAL KERATITIS, COMPLICATING OPHTHALMIA NEONATORUM.*

BY ALVIN, A. HUBBELL, M. D.,

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Harry C——— was born March 23, 1893. Six days after birth, moderately severe purulent conjunctivitis developed in the right eye. A most competent practitioner, Dr. C. C. Frederick, having charge of the case, treated it properly, as I believe, by applying a three per cent. solution of nitrate of silver once a day to the conjunctiva, and by having the eye cleansed frequently with boric acid solution, and a one-fourth per cent. solution of nitrate of silver instilled every four hours. On the fourth day of the disease he noticed a slight cloudiness at the center of the cornea, and at once called me to the case. I found the cornea distinctly hazy at its center, but there was no abrasion or loss of epithelium. There was some swelling of the conjunctiva, and free purulent secretion. At first it was feared that the cloudiness was due to the silver instillations, and these were discontinued and other remedies substituted. Notwithstanding this, it continued to deepen and spread.

On the twelfth day after birth, and the sixth after the right eye became affected, conjunctivitis began in the left, and this, too, in spite of precautions taken to prevent it. The disease assumed about the same type as that of the right eye. No instillations of nitrate of silver were used, and yet on the fourth day of the conjunctivitis, the center of the cornea began to cloud, the same as in the right eye, and also without loss of epithelium or purulent infiltration.

The opacities continued to extend and deepen, until, in the course of three or four weeks, each cornea was almost entirely involved. The purulent secretion gradually lessened in each eye after the disease had run about two weeks, and at the end of five weeks the conjunctivitis had quite subsided, leaving both corneae deeply opaque, with some circumcorneal congestion which did not disappear for many weeks.

It did not take long to eliminate from the diagnosis of the corneal trouble the action of drugs or the presence of a pre-ulcerative infiltration of the corneal tissues, and to determine that the pathological process was that of interstitial keratitis in a most typical and even severe form. The keratitis seemed to reach its climax in about

* Read at the meeting of the American Ophthalmological Society, Washington, May 14, 1903.

two months. Both corneæ remained densely opaque for six months to a year. From that time they began to clear up slowly, more particularly at the upper margins. This process was so slow, however, that at the end of two years pronounced improvement was noticeable only in the left eye. After four years, the mother says, the right cornea had just begun to look less white. From that time the opacity has grown less and less, and the boy has been able to see sufficiently with his left eye to learn to read, and in fact is quite as far advanced in his school work as other boys of his age. He now reads ordinary print with the left eye at twelve to fifteen centimeters, and Snellen type No. 60D at two meters. With the right eye he counts fingers at one-half meter. I have not tried to adjust glasses.

Nystagmus developed early, and the right eye became strongly convergent. As he has grown older and has been able to see better, both the nystagmus and convergence have diminished. At the present time the right eye is still somewhat convergent, and there is a large dense opacity extending through the lower half of the cornea, nearly to the margin. The upper part of the upper half of the cornea is quite clear, while its lower part is considerably nebulous. The iris and pupil, which can be seen through this transparent and semi-transparent portion of the cornea, appear normal and without synechia.

The opacity of the left cornea is dense at its lower third, while the upper two-thirds are quite transparent, down to near the center of the cornea, where it is somewhat nebulous. Here, however, it is sufficiently clear to enable the boy to see as above noted. The iris and pupil of this eye, also, seem to be normal.

The patient was a well-developed and healthy baby, and now, at ten years of age, is a strong and healthy boy. He has never had sickness of any consequence, and comes from apparently healthy parents. A brother, however, two years older (twelve), apparently in good general health, has, during the past three or four months, had almost total loss of accommodation in both eyes. His eyes are nearly emmetropic ($H=0.50D.$, each) and require R. and L., $+2.50D.$ glasses for reading and study. This condition in the brother may be suggestive, although I can not elicit any history of syphilis in either the mother or father.

I submit this case as one of interstitial keratitis, complicating ophthalmia neonatorum. I believe it to have been initiated by the conjunctivitis. It is unique in my experience, and I have not discovered a parallel case in literature, although I have searched considerably for it.



SKIAGRAPH SHOWING FOREIGN BODY IN ORBIT.
(GEO. F. KEIPER'S CASE.)

COMPLETE ABSORPTION OF AN INJURED CRYSTALLINE LENS IN A MAN FORTY-SIX YEARS OLD.

GEORGE F. KEIPER, A. M., M. D.

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(Illustrated.)

October 19, 1902, Mr. Frank O. came to me because of an injury received to his left eye some three weeks before. He had, on the same day, consulted Dr. Hupe, who kindly referred the case to me. The accident occurred at the Monon railway shops. A large piece of metal struck the eye in such a way that a linear scar shows just above the undilated pupil. For two weeks previous to calling upon Dr. Hupe he had applied potato poultices and had never consulted a doctor. The eye was much inflamed, vision nil. But, strange to say, the pupil dilated well after using a 1 per cent solution of atropia sulph. Examination revealed the crystalline lens entirely opaque. Fearing a foreign body within the eye, the giant magnet was used, with negative results. The eye was then skiagraphed by Dr. A. B. Westfall in the following manner: The patient lay on his left side with the photographic plate under the left temple. The X-rays were directed through the skull from above the right temple. He was told to look straight ahead at a fixed object. After a few minutes he was told to rotate the eyes and to fix the seeing eye upon another fixed object. The accompanying skiagraph shows a foreign body evidently within the orbit, for, had it been in the eye, two shadows would show instead of one.

He was informed as to the grave dangers of neglect and the uncertainty of the future. The lens was swollen, and, because of that, he was further informed that glaucoma might supervene, in which case the lens matter must be forcibly extracted. He was further cautioned that in case absorption took place a hard nucleus would probably remain, and this would require extraction. However, none of these events occurred. He used a 1 per cent solution of atropia every four hours, besides bathing the eye every hour in water as hot as the back of the hand would stand. The lens gradually absorbed and the vision is as good as what falls to aphakic eyes. Examination with the ophthalmoscope shows a normal fundus and no foreign body is visible.

CONCERNING THE TERMS ANTIMETROPIA AND ANISOMETROPIA; BRACHYMETROPIA AND HYPOMETROPIA IN PLACE OF MYOPIA; HYPERMETROPIA AND HYPEROPIA:

A PLEA FOR THE CORRECT USE OF THESE TERMS IN OPHTHALMOLOGY.

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In any system of correlated facts, which constitutes a science, the nomenclature should be as exact in its definitions and meanings as it is obligatory for the various facts to rest upon fixed and consecutive principles which tend to make up this correlated system. As soon as the specific terminology of any science is faulty as to its application or inconsistent with the root meaning of the terms employed, then the views derived from the nomenclature will necessarily lead to faulty deductions or conclusions; or, it will detract from the intrinsic value of this system of correlated facts.

As language is one of the principal instruments of thought, any imperfection in its construction or the misapplication of its word meanings will lead to a faulty process of thinking and thereby cause defective deductions to be made as a result of such ideas as arise from the interpretation of such imperfections of that language. Hence a language, and necessarily the nomenclature of a science must be unequivocal in order to be an instrument of record or even transmission of such facts as are therewith connected or related. This should certainly be one of the absolute requirements of a scientific nomenclature wherein words are not only terms, but definitions as well.

It is verily unscientific and shows a decided dearth of specific terminology, if we are forced to designate a disease by one of its prominent symptoms as is often our custom, e. g. glaucoma, jaundice, myopia, chlorosis, dropsy, and the like. Science should not promiscuously permit usage to dictate its terminology or its nomenclature. To a certain extent, this is permissible in ordinary speech. But, to tolerate this in science as often as in ordinary speech, would, in a large measure, tend to destroy deductive as well as inductive reasoning as to correlated facts. Instead of establishing a homogeneous whole, the end result would certainly be essentially heterogenous.

True it is, we are as yet unable in every instance of medical misnomer to find a term which at once will be scientific and definitely descriptive of the condition or symptom complex to which it is ap-

plied. Still, this inability on our part should not deter us in endeavoring to make concerted efforts in correcting as much of this evil as possible. There is nothing to be deprecated quite as much in any definition as an ambiguity. To eliminate this feature from a definition is of paramount importance in a scientific term or expression. Neither is it wise to employ any figure of speech in connection with a scientific idea or fact. There is, however, a marked ambiguity in the definitions and use of the above mentioned terms by some of our own writers, as well as by those on the continent (vide some of the appended extracts Nos. 2, 3 and 4).

Every word in any language has its specific root, either from its own construction or derived from another tongue; and, therefore, it has a definite and fixed meaning. On account of this, it can only be employed as such in any explanation or expression conveying a definite idea or meaning. However, any shade of meaning which can be imputed to this word must still bear a distinct reference to its root meaning. As soon as the meaning of a word fails to do this, you must seek another term in its place, one already existing, or coin a new and an appropriate one.

If this is true of a word, what must we say concerning a term? A term is a *word* or *phrase* conveying a particularly *definite* and *explicit* meaning, especially when used in a science.

This, then, is the method we must employ in the endeavor to eliminate medical misnomers and the pernicious habit of designating a disease by one of its prominent symptoms. Usage and time, as already alluded to, may be held responsible for many of these inconsistencies now prevalent in the medicine of today.

ANISOMETROPIA AND ANTIMETROPIA.

These two terms are sadly confounded at the present day by many of the writers on refraction. It is today with these terms as it was some twenty years ago with the terms hemeralopia and nyctalopia. By far the majority of writers at that time defined hemeralopia as night blindness and nyctalopia as day blindness. It was John Tweedy and W. A. Greenhill (Ophthalmic Hospital Rep., Vol. X, p. 284 and 413 et seq.) who cleared up the misunderstanding concerning these terms. Correspondingly, many of the present day writers on refraction speak of anisometropia when, in fact, they are dealing with a condition belonging to antimetropia (note 1). Indeed, very few of the modern writers make use of the term *antimetropia* at all. Any difference in the refraction in the two eyes, according to them, is a condition of *anisometropia*; but this is not true, as we shall present-

ly see. Not even all of the best modern medical dictionaries or encyclopedias, either ophthalmological or general, contain the terms (see notes 2, 3, 4 and 8). Indeed, none prior to 1877 contained both, though a few of today do define both terms (note 5). The same can be said of the text books prior to this date. It was at the Fifth International Ophthalmological Congress of 1877 that Noyes first introduced the term *antimetropia*. In fact, he coined the word and gave the proper definition for it. Yet he does not use the term *anisometropia* until 1890, though it was long in use prior to the coining of *antimetropia*. (Text Bk. on Diseases of the Eye, 1890, p. 126.) Noyes was one of the very few writers who clearly differentiated between the condition of *anisometropia* and *antimetropia*.

Definition: *Anisometropia* (extract 5), signifies an *unequal amount* or *degree* of the *same kind* of refraction error in the two eyes. This is the specific definition of the term. However, Noyes, in his book (page 126), says the difference in the refraction amount *must be* at least *one* dioptré. This seems to the writer to be very arbitrary. In reference to *antimetropia*, Noyes does not make this limitation in the amount.

In accordance with this definition, then, both eyes must be hypermetropic, hypometropic or astigmatic, but *one more so than the other*. Very few of the writers use the term as having this meaning, as can be seen from the appended extracts on *anisometropia*. The majority use the term as defined in Duane's dictionary of 1902, viz.: "the state in which the refractive condition of the two eyes is different." This definition is erroneous, because it is not true to the fundamental derivation of the term, to wit:

$\acute{\alpha}\nu\iota\sigma\omicron\varsigma$ = unequal; from $\acute{\alpha}\nu$ (privative) and $\iota\sigma\omicron\varsigma$ meaning equal.

$\mu\acute{\epsilon}\tau\rho\omicron\nu$ = measure (in the sense of standard).

$\omega\psi$ ($\omega\pi$) = eye or sight.

As the *ametropia* in the two eyes *must* be of the same *type*, only varying in amount, *how* can the term ever be made to signify a *different* refractive condition in the two eyes, unless you warp the root meaning of the term? This, however, is exactly what is done by those who adhere to the definition as given by Duane (extracts 1, 4, 11). Two things or conditions may be *unequal* in amount *yet* not *different* in their *construction* or *standard*. *Anisometropia* comes under this heading. The following are examples of *anisometropia*:

1. O. D. + 4.00 Dsph.

O. S. — 2.00 Dsph.

O. S. + 2.75 Dsph.

3. O. D. + 3.00 \subset + 50 $\alpha\chi$ 90°

2. O. D. — 3.00 Dsph.

O. S. + 2.00 \subset + 75 $\alpha\chi$ 90°

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|--|--|
| 4. O. D. — 2.00 \ominus — 1.00 $\alpha\chi$ 180° | 6. O. D. — 1.00 $\alpha\chi$ 180° |
| O. S. — 1.00 \ominus — .50 $\alpha\chi$ 180° | O. S. — .50 $\alpha\chi$ 180° |
| 5. O. D. + 75 $\alpha\chi$ 90° | 7. O. D. + 2.00 \ominus — 3.00 $\alpha\chi$ 180° |
| O. S. + 1.00 $\alpha\chi$ 90° | O. S. + 1.00 \ominus — 2.00 $\alpha\chi$ 180° |

Observe kindly that in each example the refraction in the two eyes is of the *same type*, and only a variation in the amount present in each eye. Any other refractive condition of the two eyes is, what Noyes, with perfect etymological justification, designates as *antimetropia*. Anisometropia then carries a *two-fold* meaning, namely the *kind of refraction* and the *relative amount* of this *refraction* defect in the two eyes.

Definition: *Antimetropia* signifies a *different* kind of refraction in the two eyes. It bears *no* reference to the amount of the refractive error. For that matter, the degree or amount in the two eyes may be "*equal*" or "*unequal*."

In accordance with this definition, then, one eye must be emmetropic, hypermetropic, or hypometropic, while the other eye is *hypermetropic*, *hypometropic*, or *emmetropic*. If not this condition, then some other corresponding state of refraction must exist in the two eyes, in order to be called antimetropia (extract 10).

But very few writers ever explain a dissimilar state of refraction of the two eyes as *antimetropia* (note 6). Few, indeed, when they make use of both terms ever use antimetropia in its correct signification. Few text books use *both* terms correctly (note 7). In this particular the one by Noyes, Norris and Oliver, and Claiborne are exceptions. In Duane's dictionary (extract 11) antimetropia is defined as "*anisometropia* in which the *two eyes have the opposite kind of refraction*, i. e. one myopic, the other hypermetropic." The latter half of the definition is correct, but certainly the first half is inconsistent, to say the least. Surely, the very prefixes themselves *ἀντι* and *ἀντί* would not permit the terms to be used as synonyms or as indicating any similar state of refraction. Yet, this is exactly what is done by the majority of the writers (see extracts 2, 3, 6). Thorington, in his book "Refraction and How to Refract," starts out with the proper definition, but does not adhere to it in the subsequent paragraphs. (See note 1.)

Only two dictionaries give both terms a correct definition: namely Foster's and Dunglison's. The others define antimetropia as anisometropia (Duane) or lead one to believe the terms to be

synonymous. The following is the correct etymological derivation of the term Antimetropia:

$\acute{\alpha}\nu\tau\acute{\iota}$ (from locative $\acute{\alpha}\nu\tau\alpha$) = against or opposite.

$\mu\acute{\epsilon}\tau\rho\omicron\nu$ = measure or standard.

$\acute{\omega}\psi$ ($\acute{\omega}\pi$) = eye or sight.

If one eye is taken as the measure, standard or the rule, as it certainly must be, when comparing the two with reference to their refraction, how can one consistently employ the prefixes $\acute{\alpha}\nu\sigma\omicron\varsigma$ and $\acute{\alpha}\nu\tau\acute{\iota}$ in connection with the same basic word "metropia" and say that the two conditions of the eyes are one and the same. To say the least, it is extremely illogical on the part of those who make vain endeavors to correct the nomenclature in ophthalmology and to do away with misnomers, yet adhering to the contrary definitions of these two terms.

The following are true examples of antimetropia:

- (1) O.D. +sph (2) +cyl (3) +sph \bigcirc +cyl (4) +sph or cyl
 O. S. -sph (2) -cyl (3) -sph \bigcirc -cyl (4) -sph \bigcirc -cyl
 (5) -sph or cyl (6) O.D. emmetropic
 +sph \bigcirc +cyl (6) O. S. some error

The following can also advisedly be called examples of antimetropia:

- (1) O.D. +sph \bigcirc -cyl (2) +sph \bigcirc -cyl
 O. S. + or -cyl (2) + or -sph

If authors insist upon using the term *anisometropia*, then they must also recognize the opposite term, *antimetropia*. For, in most instances, every word or term has its exact opposite with its definite corresponding opposite meaning. It is not well for any writer to impute a meaning to a term which is not consistent with its etymology, even if for purposes of classification only (especially so if in a text book on refraction; vide Thorington, note 1).

It is quite evident from the above remarks that the two terms *anisometropia* and *antimetropia* refer to entirely different conditions of refraction in the two eyes. Furthermore, it is quite impossible to employ them interchangeably as heretofore. Lastly, we must accept them as defined in the above manner, with their particular refractive conditions, or cease to be explicit in our terminology. The terms are scientifically correct, when we accept as the prime basis of all refraction phraseology, the term "emmetropia" as meaning a mathematically correct eye, i. e. optically normal, so to speak. Both terms conform to the view regarding clearness and definition as expressed in the earlier part of this paper. This being so, we have no right to use them interchangeably or as synonyms as some do now. If we accept *anisometropia* as a proper term in our nomenclature for the

conditions above outlined, then the use of antimetropia is warranted to express the opposite refraction condition. However, if we desire a perfect opposite for anisometropia, the term *heterometropia* may be substituted for antimetropia. In fact, upon close examination and analysis, the preference would be in favor of *heterometropia* as expressing a different kind of refraction in each eye. The writer favors heterometropia. In many ways the prefix "*hetero*" is more definite than "*anti*" in expressing our idea, for it does carry with itself the primitive meaning of "*a difference*," which "*anti*" does not. Should like to urge this substitution. The term conforms to all the requirements and does not carry any ambiguity. The derivation is obvious enough.

The correct use of the terms does not complicate matters as some writers suggest. On the contrary, the use of the term anisometropia at present causes decided ambiguity. No term can clearly express two opposing conditions, yet this is what is demanded of anisometropia (see extract 4).

BRACHYMETROPIA AND HYPOMETROPIA.

Whereas it has been maintained that it was truly unscientific to make use of a prominent symptom of a disease for its distinctive name, it is the writer's purpose now to apply this rule to the term "*myopia*." Furthermore, it will be clearly demonstrated that either term, *brachymetropia* or *hypometropia*, is the scientific nomenclature for that refractive error designated in every day speech as "near-sightedness."

The term *myopia* does not convey any specific idea of the condition of the eye for which it is constantly used. Myopia in its basic sense, signifies "*squinting, blinking, or winking*," and does not have any reference to the focusing of the rays of light in the eye, nor to any measurement of the eye as pertaining to the refraction. Again, the term *myopia* does not harmonize with the other accepted terms in refraction—not an altogether unimportant point. That is to say, it does not contain any of the roots, prefixes, or suffixes which might correspond with those in the other accepted terms. In creating terms this relationship of prefix, suffix, and root must be seriously considered, as it unifies and simplifies the matter, and avoids considerable ambiguity. The following table of terms will clearly show that the term "*myopia*" is, in this particular, not closely related to any one:

1. em	metropia	7. brachy	metropia
2. a	"	8. hypo	"
3. hyper	"	9. presby	"
4. anti	"	10. hetero	"
5. aniso	"		

In the old lexicons, you will find the term *myopia* defined as "mouse eye," and it was applied to *nearsighted* people because they, as a rule, possessed large eyes and often *winked* them. Hence, we see that *myopia* is a symptom just as much as redness is or pain. The only writer taking this view is Meyer (note 10 and extract 7).

The following is the derivation of the term "*myopia*" (it is rather complex and clearly shows it has no reference to refraction):

- I $\begin{cases} \mu\acute{\upsilon}\omega\psi \text{ (}\mu\acute{\upsilon}\omega\pi\text{)} = \text{closing eye i. e. blinking and is derived from} \\ \mu\acute{\upsilon}\epsilon\upsilon = \text{to close and } \omega\psi \text{ (}\omega\pi\text{)} \text{ eye. The other derivative is:} \end{cases}$
- II $\mu\upsilon\varsigma = \text{mouse (this is a secondary meaning) and } \omicron\pi\eta = \text{hole.}$
(See note at foot of page.)

From this analysis we can see that the term is not at all appropriate. If we were unable to construct a proper term for that condition known as "near-sightedness," then usage might compel us to employ the word *myopia*. But this is not the case, as we have the two terms *hypometropia* and *brachymetropia*.

Donders (1864) was the first writer to make use of the term *brachymetropia* for the condition now called *myopia* (extract 8). However, he allowed usage to influence him; and, in all of his subsequent writings the term is not mentioned. The definition he gives is the correct one, and he mentions the fact that *it*, in a measure, is the opposite term for *hypermetropia*. In this latter particular, however, he slightly errs, as the perfect opposite term is "*hypometropia*." Nevertheless, the word "*brachymetropia*" is correct, and conveys a clear idea, both as to symptom and refraction error present in the eye (extract 9). It is a pure Greek derivative, composed as follows:

NOTE:— $\mu\acute{\upsilon}\omega\psi$, the eye, blinking or closing, is only used by Curtius (Greek Etym. p. 336). The same word also has reference to a thorn; or, it can mean mouth (Hirschberg, *Geschich. d. Augenheilk., im Alterthum: Gr. Saem. Handb. d. ges. Augenheilk.*, Bd. xii, Kap. xxiii, S. 111).

In the writings of Aetius, 540 A. D., the term $\mu\upsilon\omega\pi\acute{\iota}\alpha$ is found for the first time. According to Aristotle, the term means "mouse-hole," being derived as follows: $\mu\upsilon\varsigma = \text{mouse—}\omicron\pi\eta = \text{hole}$. The term $\mu\upsilon\omega\pi\acute{\iota}\alpha\varsigma\acute{\iota}\varsigma$ was first used by Galen (xix, 436, xiv, 776), Oribas 360 A. D., v. 457; Paullus Aeg., p. 78, and Aetius (p. 113). From these two nouns we have the corresponding verbs, to wit: $\mu\upsilon\omega\pi\acute{\alpha}\zeta\omega$ and $\mu\upsilon\omega\pi\acute{\iota}\alpha\zeta\omega$. True, the later word $\mu\upsilon\omega\pi\acute{\iota}\alpha$ has been the foundation, in a measure at least, for the other terms now employed in refraction (Hirschberg). However, it is the " $\omicron\pi\iota\alpha$ " portion thereof that is to be considered.

$\beta\rho\alpha\kappa\acute{\upsilon}\varsigma$ = short.

$\mu\acute{\epsilon}\tau\rho\omicron\nu$ = measure or standard.

$\omega\psi$ ($\omega\pi$) = eye or sight.

This term complies with all the requisites, and is in harmony—i. e. in construction—with the other accepted terms in reference to prefix, suffix and base. In this connection it is not amiss to state that Donders was the first to use the word "*hypermetropia*" (see quotations). Why Donders should have allowed usage to influence him in the choice of his terms is a mystery rather difficult to solve. If Donders had adhered to the newly created terms in all of his later writings, we, perhaps, today would not be using the term *myopia*. This, too, in spite of the fact that the term *myopia* was employed by Galen, Aristotle and other classical writers.

Few writers even mention the word "*brachymetropia*" (see note 10). Those who use it, simply state it is a Greek word for *myopia*, almost leading one to believe it to be a misnomer or an obsolete expression. (Extracts 7 and 8.) No reasonable objection can be assigned for not placing *brachymetropia* on a par with *hypermetropia* in our nomenclature, and thereby displace *myopia*. At least, no etymological reason or a want of specific exactness in definition can be assigned for not doing the above. That *myopia* is a short term is no valid excuse for its retention in our nomenclature (the same is to be said of "*hyperopia*").

Perhaps the most convincing logical reason for the employment of *brachymetropia*, and, for that matter, for any of the expressions of refraction errors now in vogue, can be deducted from the following paragraphs of Donders on "*emmetropia*" (Accommodation and Refraction, p. 81, 1864. Sydenham Edition):

"Consequently the refraction of the media of the eye *at rest* can be called *normal* in reference to the *situation of the retina* only when parallel incident rays of light unite of the layer of rods and cones. When, in fact, the *limit lies precisely at the measure*, then there exists "*emmetropia*" (from $\mu\acute{\epsilon}\tau\rho\omicron\nu$, modum tenens, and $\omega\pi$ oculus). Such an eye we term *emmetropic*."

"This name (*emmetropia*) expresses *exactly* what we mean. The eye cannot be called normal, for it may very easily be *abnormal* or *morbid* and nevertheless it may be *emmetropic*. . . . Hence the word *emmetropia* appears alone to express *with precision and accuracy* the condition *alluded to*." (Italics by the writer.)

If the term *emmetropia* is as explicit as this in its definition, then we have good reason for adopting the terms *anisometropia*, anti-

metropia, brachymetropia, and hypometropia. All are of pure Greek origin and contain all the elements necessary to ally them to emmetropia, being, at the same time, as explicit. These terms are what might be designated as congeners. They are a fitting nomenclature for the exact ideas to be conveyed, being not merely words or terms, but fixed and comprehensive definitions, as well.

The term "*hypometropia*" seems to the writer to be a very acceptable one in place of *myopia*. It is a pure Greek derivative. It is the exact opposite for *hypermetropia* and, therefore, preferable to *brachymetropia* as a term for myopia. The only tangible objection to its use is the similarity of its prefix with that of *hypermetropia*. On account of this, slight misunderstandings can occur. Hypometropia is scientific and conveys exactly the meaning and the condition of the eye for which its use is intended, namely "nearsightedness." The following is the derivation of hypometropia:

$\delta\pi\omicron$ = below, less or underneath.

$\mu\acute{\epsilon}\tau\rho\omicron\nu$ = measure or standard.

$\omega\psi$ = eye.

Neither of the proposed terms permit of an abbreviation, and allow the construction of a similar term as "hyperopia," which only expresses a relative amount of sight in comparing two eyes. None of the text books of today use the term "hypometropia," though it is in some dictionaries. (Foster, 1892; Dunglison, 1893, and Gould, 1902.) Gould, of Philadelphia, does not look with disfavor upon the term "*hypometropia*."

In view of the above expressed opinions regarding the terms to replace myopia, it does seem reasonable to grant them recognition in our text books. They are entitled to a clear definition and explanation in reference to the term myopia. Neither term is ambiguous nor expressive of only a symptom of the condition for which it is proposed. This certainly can not be said concerning the term *myopia*, which has clearly been demonstrated to express but a symptom.

HYPERMETROPIA AND HYPEROPIA.

In reference to the relation between the terms "*hyperopia*" and "*hypermetropia*," it can be clearly seen, from facts already adduced in the former part of this paper, that the two terms have a vastly different signification. And, that it is as incorrect to apply the term *hyperopia* as the distinctive expression for "farsightedness," as it is to apply *myopia* to "nearsightedness." The terms farsight and nearsight are here used advisedly.

The word *hyperopia*, and especially the adjective "*hyperopic*," expresses only in comparison the *amount* of *vision* in two or more eyes, and does not signify *a true or specified error of refraction in the eyes* to which either term is applied. (Note 12.) They express a certain *quantity* of sight and not an *abnormality* or quality per se. Both terms are to be placed in the same category of words as amblyopia. Neither term conveys the same idea as *hypermetropia*, nor can they be considered as synonyms of *hypermetropia*, excepting by usage. *Hyperopia* does not bear any distinct reference to the focusing of the rays of light anywhere within the eye, and therefore fails to be a specific terminology for that which is commonly called "farsightedness." Indeed, *hyperopia* is the Greek for the English "farsight." Perhaps the "metron" portion was elided in order to obtain a short term to correspond with myopia; not bad taste, but surely unscientific.

Hyperopia is a term expressing the *relative amount* of sight an eye may have as compared with another without any reference to its actual refraction error. It simply means that an eye has a *greater acuity* of vision than the one with which it is compared, irrespective of the error existing in either. The eyes may or may not be in the same person. Therefore, it practically describes a symptom as does myopia, and nothing more. And yet, how often is hyperopia applied to the condition or "disease" called hypermetropia, not only here, but also abroad. This is a wrong application of the term hyperopia as it does not convey any idea of basic measure or standard which is demanded of those terms expressing a true state of refraction error. The derivation of the term will preclude its ever signifying the same as hypermetropia, to wit:

$\upsilon\pi\epsilon\rho$ = beyond, above or in excess of.

$\omega\psi$ ($\omega\pi$) = eye or sight (in this instance the latter is taken).

Anyone taking both terms to mean the same, fails to take note of the views expressed in the fore part of this paper. Donders founded all terms relative to refraction errors on the basic meaning of the Greek term $\mu\acute{\epsilon}\tau\rho\nu$. According to this, hypermetropia signifies a condition of refraction wherein the focus of entering rays of light in an eye are at rest, is "beyond the measure or standard of the eye, as compared with one that is emmetropic." The term hyperopia is not based upon this idea at all, therefore at no time synonymous with the former word. The question of normal acuity of vision does not enter into consideration when applying the terms hyperopia and hyperopic. Both terms, as already stated, are an expression of

a quantitative comparison of sight in two or more eyes. Hence, any term intended to express a distinct type of refraction error should incorporate within itself or its compounds the root "*μέτρον*," if possible. As these two terms are so often confounded in the current literature of today, this proposed change will meet with opposition. And yet, we must make it to preserve logical reasoning and true definition of terms.

The writer has been unable to find a text-book or dictionary, save two (Foster's and Dunglison's), which gives the correct definitions of the term "hyperopia" in accordance with the above etymological explanation (note XII). Thorington, in this particular, has the nearest approach of any author (extract 12).

CONCLUSION.

It is not to be disputed but that the majority of the modern terms now used to designate refraction errors are, in a limited sense, misnomers. Still, as outlined in the forepart of the paper, we can see that these terms are all based on the original meaning of "emmetropia." No one can find undue fault with the definition of "emmetropia" as laid down by Donders. If he does, he has a very poor understanding of the use or origin of terms. Yet one, in a measure, can but share the view of C. A. Oliver in reference to some of these terms: "In truth, the constant application of the terms 'hypermetropia,' 'myopia' and 'astigmatism' has robbed them of their meaninglessness." We are aware that usage does many strange things when it comes to the proper application of terms. It is impossible to find terms which give a truer definition of their conditions than just "emmetropia" and "ametropia." As we all are willing to accept these latter two terms as appropriate, we can show no hesitancy in accepting "anisometropia," "antimetropia," "heterometropia," "hypometropia," "brachymetropia" and "hyperopia," as they are explained in the foregoing, and considering them as the proper terminology for the conditions for which misnomers are at present in vogue. To say the least, these proposed terms are not nearly as objectionable as the ambiguity caused by the misapplication of the older ones.

As these terms bear a certain relation to each other, and as each is a distinct and definite term, according to the idea already suggested, and is based upon etymological principles, they should be incorporated into our nomenclature and receive due recognition.

NOTES.

- I. Anisometropia. Authors using the term, but not clearly defining it, employing it as "a difference in the refraction":
 1. Swanzy; *Diseases of the Eye*; 1900, 9th ed., p. 66.
 2. May, Chas.; *Manual of the Eye Diseases*; 1900, p. 396.
 3. Thorington, J.; *Refraction and How to Refract*; 1900, p. 268, et seq.
 4. Gould and Pyle; *Compendium of Eye Diseases*; 2nd, 1900, p. 95, et seq.
 6. deSchweinitz, Geo.; *Diseases of the Eye*; 1st ed., p. 174.
 7. deSchweinitz, Geo.; *ibidem*; 2nd, 1902, p. 179.
 8. Jackson; *Amer. Text Bk. of Eye, Ear, Nose, and Throat*; 1899, p. 231.
 9. Fuchs; *Text Bk. on Ophthalmology*; 1892, p. 625 (ft. note) and p. 658.
 10. Schweigger; *Diseases of the Eye*; 3rd Germ. ed., 1878, p. 74.
 11. Wolfe, J. R.; *Diseases and Injuries to the Eye*; 1881, p. 212.
 12. Duane, Alex.; *Anisometropia*; *Arch. of Ophthal.*, vol. xxx, 1901.
- II. Anisometropia and Antimetropia. Dictionaries not defining both terms and published since 1865.
 1. Thomas; *Medical Dictionary*; 1886.
 2. Quain; *ibidem*; 1894.
- III. Antimetropia. Dictionaries not defining the term:
 1. Gould, 1891 and 1896.
 2. Thomas, 1896.
 3. Quain, 1894.
 4. Schwarz; *Encyclopædie d. Augenheilkunde*, 1902.
- IV. Dictionaries having but one term—*anisometropia*:
 1. Gould, 1896.
 2. Schwarz; l. c. just being issued in sections.
- V. Dictionaries defining *anti* and *antisometropia* and *brachymetropia*:
 1. Foster; *Encyclopædie Med. Diet.*; 1892.
 2. Duane; *Med. Diet.*; 1902.
 3. Dunglison; *ibidem* (21st ed.); 1893.
 4. *Dictionnaire de Médecine*; 1865; only the term *brachymetropia*.
 5. Gould; *Med. Diet.*; 1896; not the term *antimetropia*.
- VI. No dictionary prior to 1865 contains any of these terms.
- VII. Writers using *anti* and *anisometropia* correctly:
 1. Claiborne; *Functional Exam. of the Eye*; 1895.

2. Noyes; Text Bk. on Ophthal.; 1890; pp. 84, 99, 108, 126.
 3. Norris and Oliver; Text Bk. on Ophthal.; 1893; p. 271.
- VIII. Authors using neither anti or anisometropia (writings since 1865):
1. Juler; Ophthalmic Science and Practice; ed. 1884.
 2. Valk; Lectures on the Errors of Refraction; 1889.
 3. Wells, Soelberg (Bull), 3rd Amer. ed.; 1880.
 4. Nagel, A.; Refractions u. Accommodations Anomalien d. Auges; 1866.
- IX. Brachymetropia. Dictionaries not defining the term:
1. Schwarz; Encyclopædie d. Augenheilk.; 1902.
 2. Thomas; Med. Dict.; 1886.
 3. Quain; ibidem; 1884.
- X. Authors using brachymetropia and defining it with myopia:
1. Meyer; Pract. Treatise on the Eye (trans. by F. Fergus); 1887; p. 412 and 434.
 2. Wells, Soelberg; 1880; p. 612.
 4. Donders; 1865.
 5. Nagel, Albrecht; l. c., 1866, p. 72 et seq.
 6. Duane; Eye, Ear, Nose, and Throat Text Bk. (Posey and Wright); 1903.
- XI. Authors not using the term brachymetropia, excepting saying it is another term for myopia:
- | | |
|----------------------|--------------------------|
| 1. Schweigger, 1887. | 5. Gould and Pyle, 1899. |
| 2. Wolfe, 1881. | 6. Thorington, J., 1901. |
| 3. Valk, 1889. | 7. May, Chas., 1900. |
| 4. Swanzy, 1900. | |
- XII. Hyperopia. Definitions in some of the dictionaries:
1. Foster (1892): Great acuteness of vision; as a secondary meaning, he gives "hypermetropia."
 2. Dunglison (1893): Same definition as in Foster's.
 3. Thomas (1886): A kind of vision in which the focus falls behind or beyond the retina. Hypermetropia he defines as an excessive hyperopia. [Very ambiguous.—The writer.]
 4. Gould (1891): Defines hyperopia in the same way as hypermetropia.

EXTRACTS FROM AUTHORS.

1. *Fuchs* on Anisometropia:

"One eye may be emmetropic and the other myopic, hypermetropic, or astigmatic, or both eyes may be ametropic, but in a different way." In a foot note on the same page he gives the correct Greek derivation of the term. (Note I, No. 9.)

2. *Thorington, J.:*

"Anisometropia literally means that the ametropia of the two eyes is not exactly the same."

3. *Gould and Pyle on Anisometropia:*

"A term used to indicate marked inequality in the refraction of the two eyes. Minor differences are the rule in the ordinary refraction, but these are not practically considered." (Note I, No. 4.)

4. *Euane, Alex* (Posey and Wright, Eye, Ear, Nose and Throat Test Bk., page 108):

"Anisometropia is a condition in which one eye differs in its refraction from its fellow. Slight degrees of it are not uncommon, but high degrees are rare." (See Note I, No. 12.)

5. *Norris and Oliver* (Text Book on Ophthalmology, 1893, p. 271):

"The corrections for many cases of anisometropia and antimetropia (terms respectively designative of unequal degrees of the same kind of refraction in the two eyes, and unlike kinds of refraction in the two eyes)," etc.

6. *Schmidl-Rimpler* (Augenheilkunde, 6th ed., 1894, p. 99):

"Anisometropie: Verschiedene Refraction beider Augen. Wenn auch meist die Refraction beider Augen eine gleiche ist, so sind doch mehr oder weniger starke Differenzen gar nicht selten."

7. *Meyer*; Treatise on Eye Diseases (trans. by F. Fergus), 1887, p. 412 and 434:

"The term myopia was always used for the condition designated by brachymetropia." (Page 412.)

"*Myopia* only indicates a secondary symptom, viz., partially closing of the eye-lids" (p. 434). (Yet, he defines anisometropia as simply a difference in the refraction without specifying what this difference is.)

8. *Donders*; Defects of Refraction and Accommodation, 1864, p. 82 et. seq.:

"*Brachymetropia* is evidently nothing else than myopia, and it appears preferable to use the word myopia, as being a term *already established*. The word brachymetropia was formed only in contrast to hypermetropia, to which expression I thought it right to adhere."

9. *Claiborne*; The Functional Examination of the Eye, 1895, p. 32:

"There is another term for myopia, a very good one, indeed, and for this reason it is never used, viz., brachymetropia, which is a literal translation into Greek of "shortsight."

10. *Noyes, H. D.*, 5th International Ophthalmological Congress, 1876, p. 165:

"Leaving out of view the forty-eight cases of antimetropia, as I think it right to designate those in which the refraction in the two eyes is of *essentially different quality*, as seen by the table." (In this table he gives nine varieties of antimetropia. The arrangement is a trifle different from the writer's table.)

11. *Duane*, Dictionary, 1900:

"Antimetropia—anisometropia in which the two eyes have the opposite kind of refractions (one myopic, the other hypermetropic).

"Anisometropia—the state in which the refractive condition of the two eyes is different." (Apparently he considers these two terms synonymous.)

12. *Thorington, James*; Refraction and How to Refract; 1900, p. 104:

"Hyperopia literally means an eye which does not equal the standard condition, or an eye which is less than the standard measurement."

"Brachymetropia is another name for myopia." (p. 111.)

GENERAL REFERENCES.

1. *Kaiser*; Ein Fall von Anisometropie; Arch. f. Ophth., 1867, xiii, 2.

2. *Leduc*; Contribution à l'étude de l'anisometropie; Arch. f. Ophthal., 1883, p. 534.

3. *Theobald*; Some Instructive Cases in Ametropia, Amer. J. Ophth., p. 71 (1881).

4. *Fuchs*; Sehstoerung durch Anisometropie; Arch. f. Augenheilk., 1885, xv, p. 1.

5. *Fick, A. E.*; Ueber ungleiche Accommodation bei Gesunden und Anisometropen; Arch. f. Augenheilk., 1888, xix, p. 123.

6. *Hess*; ibidem; Arch. f. Ophthal., xxxv, 4, 157; 1889.

7. *Jackson, E.*; The Correction of Anisometropia; Amer. J. Ophth., 1896, p. 289.

8. *Jackson, E.*; Management of High Anisometropia; Trans. Amer. Med. Assoc. (Ophthal. Sect.), 1900.

Note.—Since this paper was written two text-books by American authors have appeared and in neither are these terms properly employed. These books are by Dr. Veasey of Philadelphia, and Dr. Suter of Washington, D. C.

EDITORIAL.

A PLEA FOR A MORE EXTENDED USE OF MYOTICS.

The recent publication by Dr. Pyle of a case in which the use of homatropine was followed immediately by glaucoma, of so severe a type that sclerotomy was required to subdue it, suggests the query: Do ophthalmologists do their duty in allowing patients upon whom a mydriatic has been used for testing the refraction or examining the fundus, to leave their offices without using some myotic? Some years ago I had an experience similar to Dr. Pyle's and, although no operation was required to reduce the tension, one eye was permanently injured by retinal hemorrhages which immediately followed the glaucoma. Since then I have had one other patient, a woman under forty, in whom homatropine precipitated an attack of glaucoma in her one good eye, but as the symptoms appeared before the tests for refraction were completed, no harm resulted. My first patient was a woman about 19 years old, and if she had happened to live at some distance she would, in all probability, have lost much of her sight permanently before relief could have been afforded. Since the occurrence of my first case I have made it a rule to allow no such patients to leave the office without giving them a liberal dose of 1 per cent eserine; and for a year or more thereafter I took the additional precaution of giving patients who lived out of the city a few drops of the eserine solution to be used the following day, in case the effects of the homatropine persisted.

These cases may be altogether exceptional, but why should we subject our patients to an unnecessary risk, however remote? And even if we take the optimistic view of Dr. Pyle that in his case the glaucoma was a blessing in disguise, most of us would prefer to have such blessings showered upon other patients than our own. Beside glaucoma I have seen and occasionally hear of cases in which permanent loss of more or less accommodative power has followed the use of a cycloplegic. In urging the use of a myotic at the close of our refraction tests, I, of course, do not mean to interfere with the practice of carrying along the effect of a cycloplegic from day to day, where this seems necessary in the case of patients who can be kept under observation: although I find this necessity much less common than I formerly thought it to be.

I have no doubt that many other ophthalmologists use a myotic after their refraction tests, but I am sure that the custom is not as prevalent as it should be, and I believe that it should be considered and taught as one of the essentials of a course in ophthalmology.

H. G.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XII, No. 7.

CHICAGO, JULY, 1903.

NEW SERIES.

REPORTS OF SOCIETIES.

THE SAN FRANCISCO SOCIETY OF EYE, EAR, NOSE AND THROAT SURGEONS,
JANUARY 15, 1903.

The president, Dr. Louis C. Deane, was in the chair.

Dr. Robert Cohn reported *A Case of Cocaine Poisoning* in that of a young man about twenty years of age. Other than having just recovered from an attack of bronchitis, he was in very good health. A spur of bone of the septum was found and removed with regular nasal saw. A 12 per cent solution of cocaine was used and applied on cotton to the nose frequently for some time. He was warned not to swallow any. Just as the operation was finished he turned very pale and said he felt dizzy. The pulse ran up to 150 and 160, respiration as high as 50, 55 and 60, showing signs of extreme collapse. Gave him 1/20 grain of strychnine. Respiration more regular and slower. He complained of pain in breathing and feeling suffocated. For three hours he was between life and death. Repeated 1/20 grain of strychnine and strong coffee enemata, keeping him awake. It was between three and three and a half hours before we could leave him with safety.

Dr. F. B. Eaton recalled that the first patient on whom he used cocaine was a woman with a lid tumor, into which two or three drops of a 4 per cent solution were injected. As soon as the incision was made she fainted, which was attributed to the cocaine, but it was really fright.

Most of the so-called cocaine accidents have such a psychical basis. Where there is real intoxication the use of a diffusible stimulant, such as whisky, is called for. Dr. Cohn's case seems to have been such a one, and would not have used strychnine.

Dr. Deane: To state whether collapse is due to the local anesthetic or not is sometimes puzzling. There is no question that collapse can occur from psychic influences whether of fear or a reflex from the local irritation of a nerve.

It would seem from Dr. Cohn's description that his case was clearly the result of the toxic influence of the drug, as the symptoms were marked and profound; yet there are few of us who can not state similar cases of a much milder character, the result of mere aural or nasal application where no anesthetic was used.

Dr. Powers: Dr. Cohn's patient probably collapsed from swallowing the solution, but as a rule the collapse is more from the idea of an operation than from the cocaine. A patient seldom faints from a moderate solution. He begins with a 10 per cent solution and keeps increasing the strength until the patient is entirely under its influence.

Dr. Burnett thinks the best method is by electrolysis, and then give a 5 per cent solution of cocaine up to 5 mm. This will render the operation absolutely painless. Remember the case of a man who was to have a nasal operation. The cocaine was given and quite an operation was performed with no pain. But after the operation was all over, there was extreme collapse. This doubtless was due to a physical condition.

In regard to the strength of the solution. 10 and 20 per cent solutions are seldom found necessary. He prefers an 8 per cent solution.

Dr. Redmond Payne. The use of dionin in diseases of the eye was first reported by Darier, of Paris, at any rate, it was upon the suggestions made by him that Dr. Payne began its use. So far as he can learn, neither he nor any one else has made anything like an extended report upon its therapeutic value, and the report tonight is not in the nature of complete conclusions, but simply a few clinical hints as to the effects Dr. Payne has found in its use. He hopes as time goes on, to make a more methodical and complete test of its therapeutic value in diseases of the eye. Dionin is a derivative of morphine, and has been used successfully as a substitute for both it and codeine as a general analgesic, the claim being made that it has narcotic and sedative effects without their disadvantages. His experience with it has been in diseases of the cornea and conjunctiva only. He uses it in 4 and 7 per cent solutions, placing two or three drops above the cornea, which then run down over it. He used it primarily for its local analgesic effect, but found later that it produced more than the analgesia. The only remedy we have had to relieve the pain caused by corneal diseases has been cocaine, which if used continuously, produces a bad effect on the epithelium, thereby affecting the nutritive process and repair. Further, the anesthetic effect of

cocain is only temporary and must be repeated. For all the painful conditions of the cornea where an analgesic is indicated, two or three drops of dionin used in one of the above strengths, depending on the severity of the pain, will produce analgesia and complete relief from pain for from 24 to 72 hours. Further, if the condition is an erosion, an ulceration or a laceration of the corneal tissue, its repair is aided. If it is an infiltration, or serous exudation, it will hasten its resorption and have the same effect upon all inflammatory products within the cornea or around it. In several cases where the cornea was lacerated both superficially and deeply, the pain from which was very severe, causing a great amount of local and super-orbital pain, two or three drops of a 4 or 7 per cent solution, after the eye has been properly cleansed, gave splendid and prolonged analgesia and complete relief from all severe pain. In ulcerations of the cornea, both superficial and deep, a 4 per cent solution has accomplished the same result in addition to hastening its repair.

In a serpiginous ulcer the pain and progress were immediately arrested by two or three drops of a 4 per cent solution used once daily.

In a case of abscess of the cornea involving two-thirds of its extent with great pain and continued advance of the disease, two or three drops of a 4 per cent solution, daily, had the same effect of changing the progress to that of repair.

The phlyctenulae and their ulcers, are favorably influenced and pain relieved, in children, by a 4 per cent solution, a drop once or twice a day.

In a case of trachoma with dense pannus, two or three drops of a 4 per cent solution used daily, together with appropriate treatment to the lids, has nearly cleared the cornea.

Now, in the above cases wherever there was photophobia and lacrimation, both were very greatly or *completely relieved*, to the extent that the eye was left free of the excess of secretion; in fact, quite dry.

As for the manner in which these effects are brought about, Lunewski, in the *Wochenschrift für "Therapie and Hygiene,"* give an explanation that seems to apply, viz:

"It produces a more abundant flow of blood plasma in the stroma, and the result is that a certain amount of pressure is exerted upon the yielding walls of the veins, and we have as a result of this, venus stasis, and an acceleration of the lymph circulation throughout the eyeball. The pressure which is exerted upon the veins is also

exerted upon the nerves, and we have a certain amount of paresis which explains the analgesic effect. It is contra-indicated in old people with arterio-sclerosis."

Dr. Deane: It is essentially an eye drug, for its use in other parts of the body has not been followed by the same results. This is apparent for several reasons. First, because its action upon the lymphatic circulation is so marked. (The eye is the most perfect example of lymph circulation in the body, especially the cornea on which dionin has such a marked effect.) Its antiseptic power can only be demonstrated here as this action is produced only secondarily through the stimulation of the flow of tears and of the lymphatic circulation within the tissues.

Dr. Payne only gives his own experiences of its use in diseases of the cornea, but to stop here would be to limit its action. It has been favorably spoken of in connection with detachment of the retina due to serous effusion; also Gottschalk mentions it with retrobulbar neuritis, comparing it to heat, both of which effect the circulation of lymph.

Its use in glaucoma with a myotic has been highly spoken of, not only to relieve the pain immediately, but as a curative agent. Dr. Deane has used dionin in combination with atropine in a case of subacute cyclitis where the pain and deposit in the anterior chamber were notable symptoms.

This drug has been mistaken and used instead of local anesthetics, of course, with disappointment, as it is distinctly not an anesthetic, but an analgesic.

Dr. Brady: "*Acute Glaucoma an Initial Symptom in Typhoid.*"

The case is that of a woman normally delivered of twins. She passed through an uneventful puerperium of twenty-one days, although still weak, attended to her household cares for the ensuing two weeks. On Sunday she partook of a full evening meal. About five hours later her medical attendant was summoned and found her in the following condition. Temperature, 102.5° F.; greatly exhausted from persistent vomiting; unable to raise right arm; both wrists swollen and showing purpuric nodules. The left eyelids were markedly swollen, almost to closure, with strongly bulging chemotic conjunctiva. He gave her repeated hot applications to the eye, but the pain not subsiding after twenty-four hours, called me in. The temporal pain was then intense, lids markedly inflamed and edematous, the gelatinous and strongly hyperemic conjunctiva bulging 2 mm. forward and overlapping limbus 1 mm.; marked ciliary pain.

Iris dirty green color, pupil medium dilation, immobile; A. C. deepened; T= +2; light projection, poor; light perception, limited to shadow outlines. Marked yellowish green vitreous halo, no fundus detail; installation of eserine resulted in reduction of tension to + 0.5 and great relief of pain (hot compresses continued). Typical typhoid curve lead to widal test which was positive on tenth day.

Positive diazo:—b, typhi obtained in pure culture from cephalic vein; marked anemia, reds to 1,250,000, hemaglobin 35-40 per cent, Bacteriological examination of genital tract and urine negative; asthenic symptoms and fever increased, exitus lethalis on fifteenth day. No autopsy allowed.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, June 11, 1903.

William Lang, F. R. C. S., president, in the chair.

Subconjunctival Fistula Formation in the Treatment of Chronic Glaucoma. Major Herbert, I. M. S., described how this could be done, either by producing a subconjunctival prolapse of the iris or by infolding the conjunctiva. The report deals with 130 cases in which iris was left prolapsed under a conjunctival flap, and, in all but 18 eyes, a small iridectomy was combined. A large number of these eyes were in an advanced stage of the disease and were, therefore, not very hopeful when an iridectomy only was done. For this reason a large incision was dangerous. The visual results of operations done from six months to upward of three years previously were given. Only one eye has suffered from late infection, and this gave way rapidly to treatment. In two eyes there was irido-cyclitis immediately following the operation. In one case it caused partial occlusion of the pupil and in the other, which was somewhat neglected, it led to sympathetic ophthalmia, with total loss of both eyes. The sight of another was lost through protracted delay in filling of the anterior chamber. These serious early complications were less numerous than when simple iridectomy was done. It is claimed that a filtering cicatrix can be obtained with certainty and that in some cases this is the only way to relieve the tension. At any rate the risk is far less than if the tension is not relieved by the iridectomy. On the whole, the visual results were much better than could have been expected from typical iridectomy. Many cases of so-called atrophy of the optic nerve after operation are in reality due to unrelieved tension.

A fistulous cicatrix is indicated (1) when iridectomy has already failed; (2) where it is likely to fail, such as in advanced cases, and (3) when the patient is not expected to return for a second operation if one is required. The danger to the other eye is a very remote one, and would probably yield to mercurial treatment or enucleation. The connection of the iris with the prolapse can, if desired, be severed by a subconjunctival sclerotomy, cutting up through the attached base of the iris. The second method, by a subconjunctival infolding into a small sclerotomy wound, has proved effective in a number of cases. The aim was to establish a fistula unconnected with the uveal tract. By a special suture the flap can be kept in place long enough to keep separate the lips of the wound so as to form a permanent subconjunctival fistulous tract. The ten cases which had this done are of too recent date to give a correct appreciation of its value. Other successful cases of conjunctival infolding without suture have been under observation for periods up to nearly two years. Many other attempts, however, failed to relieve tension through the flap not remaining infolded long enough; and in one eye the tension was far too much reduced. Apparently infective mild iritis came on and eventually detachment of the retina. Twenty-three operations were performed without suture, or with imperfect suture.

Mr. Priestly Smith thought we were much indebted to Major Herbert for giving us his experience. The method of being certain of getting a fistula was by including iris or conjunctiva, but if it could be done without this it would be much better.

Mr. Treacher Collins said that from the result of pathological examinations a glaucoma was cured by opening of the angle or by the formation of a cystoid scar, and he had never seen one without iris or conjunctiva being in the wound. The risk of inflammation both to the eye and to its fellow were great.

Sir Anderson Critchett thought that lasting fame would attend anyone who could devise a safe way of producing a cystoid scar.

Major Herbert briefly replied.

A Case of Melanosarcoma of the Upper Lid. Mr. Work Dodd's paper was taken as read. The patient was a woman aged 83, who had noticed a lump in the upper lid for six weeks. There was no pain at first, but latterly there had been some. The tumor was situated in the center of the upper lid, and was about the size of a hazel nut: there was no redness, edema nor tenderness. The eyeball was almost hidden by the growth, but its movements were free. The patient had several wart-like growths about the body. The contents of the orbit

were removed, the lower lid only being left. A Thiersch graft was afterward applied.

Only forty-five cases of primary sarcoma of the eyelid have been recorded, ten were melanotic and four of these originated in the palpebral conjunctiva. Van Duyse states: (1) Of the few arising from the palpebral conjunctiva, most were pedunculated; while those from the skin or mucous membrane are papillary in form. (2) These attained a considerable size before extended into the surrounding tissues.

In this case the tumor is pedunculated and it has affected chiefly the free surface, leaving the skin, orbicularis muscle and tarsal plate intact and healthy. All these circumstances point to its origin being the palpebral conjunctiva.

Papers were also taken as read by Mr. M. Scott and D. L. Werner.

Mr. Bishop Harman read an elaborate paper on the enervation of the facial muscles.

Friday, July 3, 1903.

W. Lang, F. R. C. S., president, in the chair.

Keratitis, with special reference to the part played by the corneal cells.—Dr. Leslie Buchanan gave a lantern demonstration of sections of the cornea, showing the changes following injury and disease. Proliferation of corneal corpuscles appeared to take a larger share in the production of new cells than exudation from the vessels of the limbus. Sections of the normal cornea showed a more liberal distribution of corneal corpuscles in the anterior layers than in those further back. In inflamed areas budding of nuclei could be demonstrated, and this in advanced cases amounted to complete fragmentation of the original nucleus, the new nuclei being traceable along channels between the corneal fibers, presumably in the course of lymph currents. In other instances fibrillation of the corneal fibers and separation of the elements by oedema was manifest.

Mr. C. W. Dean reported *a case of primary papilloma of the cornea*. After pointing out the extreme rarity of the condition he stated that the patient was a fisherman aged 53 who was first seen in August, 1901. There was a tumor growing from the inner side of the left cornea. It had existed for about four years and had commenced as a minute speck on the "clear" part of the eye and it had gradually grown principally towards the pupil. On August 30 the growth was the size of a flattened pea, and whitish in appear-

ance. It was situated at the lower and inner quadrant of the cornea to which it was closely adherent. It slightly overlapped the conjunctiva. Some fine posterior synechiae were present. Left vision was J 14. Mr. Bickerton removed the tumor and the patient made a rapid recovery. In November the vision was 6/6 and J 2. The examination of the tumor showed it to be a papilloma with much heaping up of horny epidermis. The site of the tumor is now hardly visible.

Mr. Simeon Snell (Sheffield) related *three cases of pleuriform neuroma (elephantiasis neuromatosis) of temporal region, orbit, eyelid and eyeball*. The first was a lady aged 25 in which the deformity affected chiefly the right upper lid, but involved also the lower eyelid and the tissues of the temporal region. The condition was congenital but had gradually increased. Considerable improvement in appearance was effected by removal of the much thickened tissue.

Case 2 was a youth aged 19. He had been first seen as a baby and again five years ago. The condition was congenital and the deformity was very great and affected the left upper eyelid, the temporal region and side of face and orbit. The mucous membrane of the left alveolus and left side of the palate was also implicated. The eyeball was shrunken and small. The orbit was greatly enlarged and at its outer side was felt a thickened mass in the situation of the lacrimal gland. Two operations were performed for removal of the thickened tissues from the orbit, eyelids and the integument on the temporo-facial region with considerable improvement in appearance.

Case 3 was a boy aged 7. The condition affected the left eyelids, the temporal region and the orbit; the eye was buphthalmic. It was congenital but had gradually increased, especially latterly. The globe was enucleated and on two occasions large portions of the thickened tissues were excised. In all three cases the tissues were dense and contained numerous coils of thick threads. Bleeding was very free.

The histological examination of the second and third cases was presented by Mr. Treacher Collins. He had found that the skin in both cases showed thickening of the corium, but no inflammatory infiltration. In the subcutaneous tissue numerous sections of nerves were seen cut in various directions; there was marked thickening of the connective tissue elements both perineurium and endoneurium. Sections stained by Weigert's method showed the nerve fibers in the center of these masses of thickened fibrous tissue. Examination of the buphthalmic eye from the third case showed enlargement and

thickening of the fibrous tissue of the nerves, external to the sclerotic and lying in the sclerotic. The nerves of the corneal and uveal tract were enlarged and there was a congenital adhesion of the iris to the cornea with a failure in development of the ligamentum pectinatum. This accounted for the increased tension and subsequent enlargement of the globe.

Mr. Snell remarked that the literature of the cases was not very extensive. He referred to Alexis Thomson's Monograph, in which fifty-eight cases of plexiform neuroma in different parts of the body were collected. Out of this number were eighteen in which the eyelids, forehead and temple were affected, but there was no reference to implication of the orbit.

The following card specimens were shown:

Dr. Leslie Buchanan: (a) *A specimen of an eye which was quite healthy previous to an injury ten weeks before, but which then suppurated and now, on removal, contained bone in the shriveled stump.*
(b) *A case of keratomycosis.*

Messrs. W. C. Rockliffe and L. H. Parsons: *Plexiform neuroma.*

C. DEVEREAUX MARSHALL, F. R. C. S.

ABSTRACTS OF RECENT OPHTHALMIC LITERATURE.

E. A. SHUMWAY, M. D.,

PHILADELPHIA.

The Operative Detachment of the Choroid, with a Remark Concerning the Action of Glaucoma Operations.—Axenfeld (*Klin. Monatsbl. f. Augenheilk.*, Feb., 1903) believes with Fuchs, that detachment of the choroid after cataract extractions and iridectomies, is much more frequent than has generally been supposed. Since the publication of Fuchs' paper, he has observed a number of cases, and is of the opinion that they are probably more frequent now than formerly, as the result of the more extended after treatment of operative cases by the open method. His attention was first called to the fact by the observation that the reattachment was hastened very much by the constant application of a bandage, and he thinks the frequent occurrence of the condition in the Vienna clinic may be due to the regular use there of the wire protective mask. At the same time this fact should not deter one from the use of the method as the observations of Fuchs, Augstein, Bietti, Schüler and himself have shown that the non-inflammatory post-operative detachment of the choroid is without permanent injury to the eye. On the contrary, the fact that there exists, under these circumstances, a marked lowering of the tension, would indicate that it should be considered as a fortunate occurrence in iridectomies for glaucoma. In one case in which detachment occurred after iridectomy, he was able to observe the disappearance of a decided glaucomatous excavation of the optic nerve, which reappeared as the *anotio choroideæ* subsided, and the tension rose—a proof, if such be necessary, that the glaucomatous excavation is a pressure excavation. The exact method by which iridectomy is effectual is even at the present day somewhat obscure, and he suggests that in many cases of iridectomy and sclerotomy there may be slight choroidal detachments, so far forward as to escape detection, associated, perhaps, with slight tears in the ciliary bodies, as Fuchs' preparations showed, by means of which a *supra-choroidal filtration* is brought about, and the tension is kept below normal, until the choroid is reattached, or the ciliary tear closed by coagulation products. Fuchs, in fact, has seen two cases in which, with the disappearance of the detachment, fresh attacks of glaucoma supervened, and the condition has an analogy in the case of corneal fistula, closure of which produces increased intraocular tension, as a result of the sudden cessation of the excessive drainage. He believes,

therefore, that the open treatment of glaucoma operations is especially indicated, as the greater possibility of choroidal detachment thus offered, is in the interest of the patient, rather than the contrary.

Extirpation of the Lachrymal Sac as a Prophylactic Measure in Septic Infections, in Occupation Injuries of the Eye.—Axenfeld (*Klin. Monatsbl. f. Augenheilk.* Feb., 1903), urges the extirpation of the lachrymal sac not only in long standing dacryocystitis, in ectasis, fistula, recurring erysipelas, phlegmonous and trachomatous dacryocystitis, etc., in which conditions it is generally considered necessary, but in hypopyon keratitis, and also in ordinary dacryocystitis, associated with stenosis of the duct, in patients living away from the cities. He has performed the operation 270 times in four years, and has the impression that the number of cases of septic corneal infection has diminished, and their severity has decreased, although exact proof, by means of statistics would be difficult to obtain. He describes his method of operating in full, which differs from those of Czermak, Kulmt-Volekers, etc., in the placing of the incision in front of the crest of the lachrymal bone, commencing just above the ligamentum canthi internum, 2.3 mm. in front of the crista, and running in a curved line down and out for a distance of $2\frac{1}{2}$ cm. The cut is made directly down to the bone, cutting through the periosteum. Bleeding is stopped by means of specula, provided with curved hooks, one placed so as to stretch open the wound laterally, the other at right angles, so that all four sides are pressed upon. The sac is then removed *sub-periosteally*, the periosteum of the crista and lachrymal groove being elevated, and carefully dissected out from above downward, together with the sac. In this way the sac is removed in its entirety. Before cutting the lower end, the sac is drawn upward, as much as possible, so that the lower part may be entirely removed. If the duct is then curetted, with a small curette, so that drainage is established into the nose, the wound usually heals by first intention. Care must be taken not to cut too close to the lid margin; otherwise the skin may sink into the fossa lacrimalis and produce entropion. In a few weeks the epiphora is very slight, and the removal of the lachrymal gland is rarely necessary, unless it is hypertrophied. Axenfeld recommends highly the use of Römer's pneumococcus serum in ulcus serpens, and also as a prophylactic in operations where the local conditions are not good, or where general physical disturbance, such as diabetes, makes the risk of infection greater.

Contribution to the Differential Diagnosis of Cysticercus Intraocularis.—Süsskind (*Klin. Monatsbl. f. Augenheilk.* Feb., 1903)

reports a case of subretinal cysticercus, which he removed through a scleral incision. The eye, when first examined, showed diffuse opacities of the vitreous, with numerous floating membranes, which were successfully cleared up by means of subconjunctival salt injections, and the administration of potassium iodide, so that the head of the parasite could be seen moving beneath the retina. The incision was made through a conjunctival flap below, and on opening the sclera, the bladder appeared in the wound, and was withdrawn by means of iris forceps. The wound healed promptly, but the vision remained poor because of a central, flat detachment of the retina. This method is to be preferred to enucleation, which otherwise would be necessary.

A Further Note on Myopia Operations.—Pflüger (*Klin. Monatsbl. f. Augenheilk.*, Feb., 1903) agrees with Axenfeld that the method which obviates the performance of late discussion for after cataract in myopia operations, should be the operation of choice. He prefers discission of the transparent lens and subsequent linear extraction of the swelling lens, to extraction of the transparent lens. The discission is always made subconjunctivally, and care is taken to prevent the evacuation of the anterior chamber, as the quantitative and qualitative alteration of the solid constituents of the aqueous, after evacuation of the chamber, may make it chemically irritating to the iris, and lead to inflammatory reaction.

Conjunctivitis Due to the Influenza Bacillus.—Zur Nedden (*Klin. Monatsbl. f. Augenheilk.*, March, 1903) has confirmed Jundell's observations on conjunctivitis occurring during epidemics of influenza (published in *Mitteilungen aus der Augenklinik des Carolin. Medico-Chirurg. Institutes zu Stockholm*, 1902). He investigated thirteen cases, ten of which were children in the first two years of life. The condition was a well characterized, light, or moderately severe inflammation, which involved chiefly the conjunctiva of the lids and transition folds, and was cured by treatment with nitrate of silver and mild antiseptic lotions, without affecting the eyeball. In ten cases the influenza bacillus was found practically alone; in three, it was associated with the pneumococcus, but was the predominant organism. In five cases the eyes were primarily involved; with the conjunctivitis, appearing either simultaneously or secondarily, there was an associated bronchitis, dacryocystitis, rhinitis or otitis media, so that the conjunctivitis can not be looked upon as a simple matter, as far as the general organism is concerned. He disagrees, however, very positively with Jundell's conclusions as to the identity of the influenza bacillus and the Koch-Weeks bacillus. Morphologically, in smears

from the conjunctiva, the influenza bacillus appear as very short, plump rods, almost like cocci, whereas the Koch-Weeks bacillus is a very small, slender rod. Moreover, it is exceedingly difficult to obtain cultures of the Koch-Weeks bacillus, while the influenza bacillus grows readily on artificial media, especially when it contains blood, and the small, homogeneous, dew-drop colonies retain their original, slightly elevated appearance, even after the medium has become dry. The Koch-Weeks bacillus, in addition, has never been found in the bronchi.

Changes in the Eyeground in Miliary Actinomycosis.—L. Müller (*Klin. Monatsbl. f. Augenheilk.*, March, 1903) had the opportunity of examining the eye grounds of a patient who was supposed to have miliary tuberculosis. Near the optic nerve there were a number of small, yellowish-white spots, about $\frac{1}{4}$ the size of the papilla, over which the retinal vessels made a distinct bend: the nodules were surrounded by pigment. The eyegrounds were otherwise normal. At the autopsy the condition proved to be a miliary actinomycosis, instead of tuberculosis. Anatomical examination of the eyes showed that the nodules were situated in the retina, instead of the choroid, and were composed of collections of very large mononuclear epithelioid cells, the nuclei of which stained poorly. No micro-organisms could be found. These nodules of large, poorly staining cells are characteristic of actinomycosis, and represent the reaction of the tissues to the irritation of the fungus, with destruction of the invading organism.

Glaucoma After Cataract Extraction Produced by the Lining of the Anterior and Posterior Chambers by Epithelial Cells.—Elschnig (*Klin. Monatsbl. f. Augenheilk.*, March, 1903) reports a case of glaucoma secondary to cataract extraction, in which the corneal wound had opened and the healing had been delayed. Histological examination of the eyeball, which was enucleated because of the severe pain, showed a very irregular corneal wound, with attachment of the stump of the iris to the posterior surface of the cornea; the posterior surface of the cornea, both surfaces of the iris, the ciliary processes, and the remains of the lens capsule, constituting the after cataract were covered with several layers of epithelial cells, which had evidently arisen by the extension inward of the conjunctival and corneal cells, at the time of the opening of the wound: they were the probable cause of the blocking of the angle of the chamber, and of the appearance of the glaucoma. He ascribes the condition to faulty technique in making the section.

Capsular Ligature in the Operation for Strabismus.—Trousseau (*Ann. d' Oculistique*, Jan., 1903) inserts a capsular ligature in the external rectus muscle, after tenotomy of the internal rectus. He describes the operation as follows: The patient is made to look inward, or the eye is held in this position. The tendon of the rectus externus is grasped through the conjunctiva, by means of fixation forceps, and drawn upward; with the other hand a long curved needle is passed into the episcleral tissue near the corneo-scleral limbus, then through the tendon, keeping close to the sclera, then under the inner face of the muscle and finally through it and all the tissues adherent to it, to emerge through the conjunctiva near the outer canthus. Moderate tenotomy of the internal rectus is then performed, with a conjunctival suture, and the two ends of the capsular ligature are tied while the eye is drawn to the outer angle. The bunching of the tissue is not very great, and disappears ultimately without leaving a trace. The thread is allowed to remain from 6 to 12 days, according to the result obtained. Trousseau aims to secure an over-correction of about 5° . In twenty-seven cases he secured satisfactory results in twenty-one: two were over-corrected and four under-corrected.

Anatomical Examination of an Eye Affected by Pigmentary Retinitis, with a Zonular Scotoma.—Gonin (*Ann. d' Oculistique*, Jan., 1903) had the opportunity of studying a case of retinitis pigmentosa, and comes to the following conclusions:

1. The retinal pigmentation is greatest in the equatorial region, and not in the extreme periphery.
2. The principal phenomenon is not the pigmentation, but the atrophy of the sensory elements which begins in the outer retinal layers.
3. The atrophy of these elements is most pronounced at first in the equatorial region, and is localized here more exactly than the pigmentation in a circular zone, which very gradually widens toward the periphery and toward the posterior pole.
4. The alteration in this region corresponds to the presence clinically of a zonular scotoma.
5. The retinal degeneration may have its maximum in a circular zone, even when the scotoma is not yet complete, or when it has ceased to be annular.
6. The immediate cause of the degeneration is a slow atrophy of the chorio-capillaris.
7. The reason for the localization of the atrophy of the chorio-capillaris in the equatorial region is due probably to the manner

of distribution of the choroidal arteries, the equatorial region being supplied by their terminal branches.

8. A sclerosis of the retinal vessels accompanies that of the choroidal vessels, and probably is a part of the same process.

9. This sclerosis of the retinal vessels may cause a gradual atrophy of the internal layers of the retina, but it could not be the direct cause of the degeneration of the outer layers, nor of the pigmentation.

10. The hyperplasia of the supporting tissue is *not* the cause of the atrophy of the sensorial elements, and if present in advanced cases, can only be secondary.

11. The retinal pigmentation is consecutive to the retinal degeneration.

12. The pigment comes from the pigment epithelium, and the pigment cells are the chief agents for carrying it into the retina.

13. The retinal pigmentation is not due to the presence of verrucosities on the lamina vitrea.

14. The perivascular spaces and the cavities resulting from the atrophy of the retina facilitate the entrance of the pigment cells into the retina, but these cells are capable of forcing their way independently as far as the vitreous, by means of their own active movements.

15. The complex of histological alterations is of a degenerative rather than inflammatory character, and appears to be attributable to a disturbance of nutrition, under the influence of the progressive sclerosis of the nutritive vessels of the eye.

REVIEW.

Dislocation of the Optic Nerve (Evulsio Nervi Optici).—*Zeitschrift für Augenheilkunde*, May, 1903.—By evulsio nervi optici Salzmann understands the forcible backward dislocation of the optic nerve from the scleral canal without any break in the continuity of the coats of the eyeball in the immediate vicinity. The injury is so rare that the author was only able to find in the literature seven cases to compare with the one observed by himself, and in five only of these were the ophthalmoscopic conditions known. The other cases had been reported as purely anatomical findings.

The ophthalmoscopic picture of evulsion of the optic nerve is characterized first of all by the absence of the papilla and its vessels. In place of the optic disc is seen a deep hole or excavation due to the tearing backward of the optic nerve from its canal which in turn is filled to a considerable depth by the vitreous pressing backward. In Salzmann's case the depth of the hole was about four millimeters; in Aschman's and Birch-Hirschfeld's, the only others in which measurements were taken, something like 2.5 and 2.0 mm. respectively.

The question why in these cases the extravasation of blood into the empty optic-nerve canal was so inconsiderable is easily answered. It is only in a few isolated cases that the fundus is clear enough to permit of a diagnosis of this condition by means of the ophthalmoscope: numerous other examples of evulsio nervi optici, in which the affected territory is obscured by hemorrhages and the like, must necessarily pass unrecognized.

The floor of the hole is formed by tissue, the exact nature of which cannot be made out ophthalmoscopically. It appears for the most part of a gray shade: only in Salzmann's case was it at the commencement dark-red in color changing later toward the end of the period of observation, into a gray. Generally, however, the color of the floor is strikingly dark, and this fact excludes any possibility of confusion with an ordinary excavation. Differences in the level of the floor in Salzmann's case, were made out with certainty by the direct method and also refractive differences and parallaxic movements in high degrees.

Such a backward displacement of the optic nerve without a break in the continuity of the lamina cribrosa is hardly to be thought of, and Salzmann believes that this structure in great part is torn out of the canal along with the optic nerve. Still greater, however, is the uncertainty as to how the dural sheath of the nerve behaves in these

cases. Ophthalmoscopic examination reveals nothing and anatomical findings only show that separation may or may not be present. As regards the retina, in pronounced cases such as Salzmann's, Aschman's and possibly, also, Kariafiath's, this stricture was torn through about the whole circumference of the papilla; in Birch-Hirschfeld's patient, however, a refilling of the retinal vessels in their full extent seemed to show that no break in continuity had taken place. It goes without saying that with an end-artery like the arteria centralis retinae, such a circular rupture of the retina must lead to an anemia in the strictest sense of the word in the parts left in situ. The fact that in Salzmann's case the arteries and veins reacquired their normal color and caliber in ten and fourteen days respectively, must be explained by means of fresh anastomoses with the choroidal vessels at the point of separation.

As regards the subjective symptoms, there is little to say; like the other injuries of the optic nerve *evulsio nervi optici* causes immediate and permanent blindness. Unfortunately, our knowledge concerning the outcome of these injuries is very faulty. In Nicolai's case there formed after a month an excavation of a greenish color, but the vessels did not reappear. In Birch-Hirschfeld's case masses of whitish scar-tissues formed in front of the papilla and macular area hiding these parts. In Salzmann's case there was a tendency for the hole to fill up from the bottom; the depression disappeared and the foramen opticum sclerae became smaller, an occurrence attributable to contraction of scar-tissue which had formed in the floor and sides of the excavation.

From an etiological standpoint, the eight cases of *evulsio nervi optici*, fall into two groups of four cases each. In the one set there is a history of trauma resulting from the entrance in the orbit from before backward of a blunt body, umbrella (His), cow's horn (Pagenstecher), bean-pole (Aschman), hay-fork-prong (Birch-Hirschfeld). In the other group, (Kariafiath, Issekutz, Nicolai and Salzmann), the injury was due to a revolver-shot at close range.

W. GORDON M. BYERS.

A Case of Pulsating Exophthalmus Operation and Recovery.—

Jens Schou, one of the editors, "*Ugeskrift for Læger*," June 6, 1902.—In 1898 Dr. Slomann, in an article entitled, "The Pulsating Exophthalmus," gathered previous cases to show its rarity, he found only four cases on record here at home; of these, two were "false" pulsating exophthalmi due to the presence of pulsating tumors in orbit, viz.: one case of Prof. Grut, and one case of Withusen, the two other cases recorded by Dr. Slomann, in his paper are "true" pulsating exoph-

thalmi, due to intrasinuoidal rupture of carotids. One of these cases treated by Profs. Grut and Tscherning, was of traumatic origin. Exophthalmus was here double and with an interval of one day the common carotids on both sides were tied; death occurred three days after last ligature. The other case was of spontaneous occurrence, and was treated with favorable results by Dr. Slomann, by ligature of common carotid.

In spite of Dr. Slomann's result in curing his patient by means of ligature of common carotid, he arrives, through study of previous cases and theoretical reasoning, to the conclusion that the proper treatment for pulsating exophthalmus is not ligature of common, but of internal carotid, because the danger of recurrence is much greater with the former operation, on account of the rich blood supply of collateral circulation, especially through the external carotid. Ligature of the internal carotid as a cure for pulsating exophthalmus, had been used only once when Dr. Slomann wrote his paper, viz: by Dr. Brenner.

My plan was to ligate internal carotid. The operation developed into an involuntary experiment, *in vivo*, in support of the ligation of internal carotid, inasmuch as the patient, as was later shown, had the branching of the common carotid quite abnormally high.

Patient, male; thirty years, fell January 15, 1901, with result of a basic skull fracture, for he lay unconscious a long time, had bleeding from left ear, and an ear specialist diagnosed rupture of the drum. Immediately after the fall he had noises in head referred to ear lesion, but even after that was cured the noise still remained and even increased. Six or seven weeks after the accident, his associates noticed his right eye was more prominent than the left, and at the same time disturbed vision appeared in right eye.

The patient went to see Dr. Norrie, who with the diagnosis of exophthalmus, also discovered pulsation of the whole bulb, the pulsation could also be seen, though with some difficulty. A constant murmur was heard with rythmical accentuation when one listened over the eye, and there was an intermittent noise or murmur over the whole cranium. The murmur and pulsation ceased with pressure of right carotid, not of the left. Vision was normal. Ophthalmoscopic examination revealed the retinal veins lightly filled. In the bulbar conjunctiva one saw many over-filled veins. There was diplopia and much limited motion of the prominent eye.

Dr. Norrie referred the patient to me and he was operated Feb. 4, in St. Joseph's Hospital, surgical service. It was my intention to ligate internal carotid. Incision made along anterior border sterno-

mastoid, from notch of sternum to upper ring thyroid cartilage. Exposing anterior border of muscle and dividing deep fascia, I worked my way to the level of cornu major hyoidie. The vena facialis communis presented itself right here, and this was followed backward until it entered the internal jugular vein and immediately in front of this junction, very carefully I isolated with anatomical forceps, the supposed internal carotid. When the artery was practically isolated and I wanted to slip the forceps behind the vessel in order to completely isolate it, a brisk arterial hemorrhage started, which upon examination was found to come from the artery compression with Peans forceps.

With the greatest caution I now attempted to isolate the artery further down, but with like result, hole in artery, brisk hemorrhage; through a new incision lower down in the neck, the common carotid was tied without any trouble, at level of cricoid cartilage. In the highest angle of my incision I tied the internal carotid without difficulty; we attempted to remove forceps, but found the hemorrhage continued without any rebate. The two incisions were then united, and I succeeded in ligating the artery 1 cm. below the lowest point of hemorrhage, thereby I had tied the internal carotid near to the lower end.

On removing forceps the bleeding continued unchanged; in order to get better view, after a double ligation, I severed the common facial vein and now we could see that the hemorrhage came from the common carotid which divided abnormally high. At point of its branching I ligated now, and the hemorrhage stopped, silk ligature, primary union of wound.

Since operation no objective or subjective demonstrable noises in head, no pulsation and diminution of exophthalmus; for the first few days he was mentally blurred a little, wanted to get out of bed, but was easily quieted; left hospital absolutely well.

Dr. Norrie saw him on July 4, and said that he looked and felt natural and well. The ophthalmoscope showed normal fundus, no exophthalmus, no diplopia, vision, 6/6; no pulsation. He was seen later in 1902, and treated for syphilis, which had existed previous to operation.

It is my belief that the brittle condition of the arteries was due to syphilis, and Dr. Ehlers, who treated him for syphilis, concurs in this opinion.

The point which I wish to emphasize is that the internal carotid should be tied, instead of the common carotid, in pulsating exophthalmus.

FRANK C. TODD.

Obituary.

PROFESSOR PANAS.

NECROLOGY BY F. DE LAPERSONNE.

[Abridged translation from the *Archives d' Ophthalmologie*, by EDWARD ADAMS SHUMWAY, M. D., Philadelphia.]

Six years ago Panas noticed a beginning atrophy of the muscles of his left hand, confined at first to the thenar eminence, and subsequently involving the other muscular groups. Being himself a thorough student of neuro-pathology, he recognized that this was not a purely local affection, but the initial symptom of the Aran-Duchesne type of progressive muscular atrophy. For six long years he watched the slow but fatal involvement of one muscle after the other. Uttering no complaint, he felt his hands, whose surgical skill had been legendary, gradually become paralyzed; he saw the malady invade his lower limbs, with a progression hopeless in its regularity; with the sensation of being slowly crushed in a nightmare, he watched, day by day, the progress of the disease, fully conscious of the outcome, and announcing in advance the new symptoms which were to appear. And, during this time, with the courage of a Stoic, he continued to fulfill his duties, up to the end. As president of the "*Académie de Médecine*," he directed its affairs; with a marvelous activity he organized the ophthalmological section of the Paris Congress in 1900; and, so far as his strength permitted, he gave his clinical instruction at the Hotel-Dieu, dictating to his pupil, Serini, his last lectures, which have appeared in the *Archives d' Ophthalmologie*. In this final struggle against death, he showed that force of character, that calm energy, that tenacious will power, which had been his dominant qualities throughout the course of his life.

Panas was born in Cephalonia, in 1832, the son of a Greek physician and scientist. He was given a careful classical education, and, at seventeen years of age, was sent to Paris, to commence his medical studies. From the outset he showed an extraordinary facility of assimilation, and a great ability for work. Interne at twenty-two years of age, he received the gold medal of the faculty in the following year (1855). He applied himself to surgery, on the completion of his service as interne, and became prosector of anatomy in 1861, when he published his thesis on "the anatomy of the nasal fossas, and of the lachrymal passages," a subject which he

was destined to study most successfully in his later career. In his dreams of the future he could scarcely have thought that he would obtain a seat as ophthalmologist in the *Faculté de Paris*, for such a chair did not exist. The word "ophthalmology" was hardly known in France. Everyone did the operation of reclination for cataract, as the method of extraction was so often attended by disastrous results; the diseases of the external eye were treated in the surgical clinics, and the rest was left to a few specialists, chief among whom were Sichel, and Desmarres, the teacher of the great v. Graefe, the future head of the German School of Ophthalmology.

After, as before, the publication of his thesis, Panas continued to devote himself to teaching. From 1859 to 1863 he gave anatomical and operative courses at the *Ecole pratique*; in 1859 a public course in surgical anatomy; in 1860 a public course in physiology of the nervous system, and of the sensory organs; in 1861 a public course in external pathology. His lectures obtained for him a livelihood, and as he had had the good fortune, during his service as interne, to attract the attention of Nélaton and Laugier, their support was of immense value to him. At this period of hard struggle and constant competition, he formed also a lasting friendship with Guyon, who was later the dean of French surgery, a friendship which became stronger, as the years went by, despite their differences in disposition and appearance. Guyon and Panas received their degrees of fellowship, in 1863, at the same time, and Panas served successive terms as surgeon at Bicetre, Lourcine, Midi, and Saint Antoine.

His days of probation having passed, practice came to him naturally, particularly among the members of the Greek colony. Everything smiled upon the young surgeon. In 1867 he married: his young wife, fearful at first of great social functions, accepted later the duties devolving upon her, as the wife of a prominent man, and, without losing her charming simplicity, presided as smiling hostess at his magnificent receptions. And when his fatal malady appeared, she consecrated herself willingly to the care of her patient, standing by him faithfully until the end.

During the war of 1870 Panas was surgeon at the Saint Louis Hospital, and at the same time took up the duties of military surgeon at Saint Martin's Hospital, obtaining exceptional results in the numerous operations, at the time of the siege, by the methodical employment of special dressings. He had charge of the eye services, also, and observed here, for the first time, the condition of

acute toxic amblyopia among soldiers, who, after nights of duty on the ramparts or in the casemates, with very little to eat, came to him almost blind from drinking alcohol to keep up their strength. After the war he received the cross of the Legion of Honor, but did not become an officer until twenty-five years later. Death prevented his advancement to the position of Commander, an honor for which his friends had been working. The war had called the attention of the French to the numerous flourishing chairs of ophthalmology in Germany, and Panas, who had held eye clinics at the *Bureau central* of the hospital, since 1869, and had organized special services, first at Saint Louis, and then at Lariboisière, was, in 1873, requested by the faculty to give an auxiliary course in ophthalmology. At this period he published his lectures on strabismus and the ocular paralyses, on the anatomy, physiology and pathology of the lachrymal passages: upon keratitis, retinitis, and the inflammatory diseases of the internal membranes of the eye. He was much occupied with surgery, however, and made various communications on this subject to the scientific societies. In 1877 he was elected president of the Surgical Society, and entered the *Académie de Médecine* as a member of the section on internal pathology.

In 1879, when the chair of ophthalmology was created, Panas was chosen to fill it. The clinic was established at the Hotel Dieu. At first he was forced to share Dupuytren's amphitheatre, so the space for consultation rooms and ward cases was very limited. Thanks, however, to his perseverance, he subsequently secured larger quarters, with a laboratory and operating hall of his own. From this time he devoted himself exclusively to the ophthalmological teaching, spending many hours daily at the hospital and in his laboratory. With Landolt and Poncet de Cluny he founded the "*Archives d' Ophthalmologie*," in 1881, and actively supported Chibret in his attempt to found the "*Société Française d' Ophthalmologie*," which was accomplished in 1883.

By the authority of his teachings, the great value of his investigations, and the increasing number of visiting foreigners, rather than because of his official position in the *Faculté de Paris*, Panas soon established himself as the head of the French school of ophthalmology. His high standing was proved also by the respect shown him in the International Congresses, at Edinburgh in 1894, and especially at Utrecht in 1899, where with Priestley Smith (Birmingham), Leber (Heidelberg), Raymond (Turin), and

Knapp (New York), he was asked to make one of five addresses in the general sessions upon a subject of his own choosing. He selected for his theme "The Paralysis of the Ocular Muscles of Traumatic Origin," the mechanism of which he had established, and, as on other occasions, he took the opportunity of urging the necessity of considering ophthalmological subjects from the broad basis of general pathology.

Panas was a member of numerous scientific societies, and honorary member of the Royal Academy of Berlin. During the past year he was compelled to decline the honor of delivering the Bowman Lecture before the Ophthalmological Society in London, but he presided over the Section of Ophthalmology at the Congress in 1900. Always faithful to his fellow countrymen, he furnished an ambulance and sent it to Athens during the Greco-Turkish war, for which he was made grand officer in the order of Saint Sauveur by the King of Greece. In 1898 he was elected president of the *Académie de Médecine*, and presided over its sessions with notable charm and authority.

Panas deserved all these honors, not only for his great intelligence and power of work, but for the absolute correctness of his professional attitude and the conscientious performance of his duties. Among his contemporaries he enjoyed the reputation of being one of the most skillful surgeons, both because of his manual dexterity and of his imperturbable *sang-froid*. The after-treatment of his operative cases was particularly careful; he changed the dressings himself, and was one of the first in France to adopt Lister's ideas, and to practice antisepsis and asepsis. He applied these qualities to his ophthalmological work, performing with skill the gravest operations upon the orbit and sinuses, and perfecting a number of operations on the eyelids, as his methods for ptosis, entropion and blepharoplasty prove. In cataract operations he showed a marvelous dexterity, making the corneal incision almost with a single movement of the Graefe knife.

At the hospital Panas devoted himself to his *role* as teacher with great energy. He attended the clinic, gave a clinical lecture, and then performed numerous operations daily, never appearing fatigued. Under an outward calmness of manner, he showed great kindness toward his pupils and his patients, recognizing quickly those who were willing, and ignoring those who were lazy. Once attached to a pupil, he aided him constantly with his counsels, stimulating his zeal and searching always for something to do in his

favor. He was preoccupied with scientific matters, and cared little for society or the theater; he was devoted, however, to flowers, especially to roses, with which he surrounded himself at his charming estate at Roissy, where he died on the 6th of January.

It would be impossible to give a complete account of his scientific works (*vide* the bibliography in the *Archives*), but a short analysis may be attempted. They may be divided into two portions; first, those on anatomy, physiology and medical and surgical pathology; secondly, those on ophthalmology. His surgical studies were especially directed to the joints, to abdominal surgery, genito-urinary disorders, hernias, ovariectomy, etc. His work on the nerves began in 1872, when he showed that paralysis of the radial nerve, ordinarily considered to be rheumatic, might be due to pressure. Later on he made a number of observations which led him to claim that paralysis of the sixth cranial nerve was often caused by longitudinal fracture of the petrous portion of the temporal bone, a theory which was shown to be correct by an autopsy of Nélaton's, six years afterward. Following up this subject, he established the importance of fractures of the base of the skull for other ocular palsies. At the Congress in Utrecht he raised the question whether many cases of congenital strabismus were not due to injuries during labor. On the subject of concomitant strabismus and ocular paralyses he contributed a number of important papers. He considered concomitant strabismus to be due to a functional disturbance of convergence, without muscular or nervous alteration, and as it is always a bilateral condition, he taught that the operation, whether tenotomy or advancement, should be performed upon both eyes. To the operation of tenotomy he added the principle of elongation of the muscle by stretching.

His excellent report on the auto-infections of the eye before the French Ophthalmological Society in 1897 is well known. It contained his experiments upon sympathetic ophthalmia, for the production of which he announced the following theory, which agrees with that of Schmidt-Rimpler: "Under the influence of the inflammatory process in the sympathizing eye, a disturbance of innervation is produced in the sympathetic eye, which puts it in a condition of morbid receptivity, and brings about local manifestations of disease in patients, who have certain dyscrasias, or foci of infection elsewhere. The irritative disturbances are only an accidental cause; the immediate cause is independent of conditions within the eye."

Panas was among the first to protest against considering hereditary syphilis as the sole cause of parenchymatous keratitis; he believed that it was only one of several causes of a general dyscrasia, to which the keratitis was due. By his experiments with fluorescene and naphthaline he showed that cataracts produced by naphthaline were always preceded by changes in the retina, and he believed, therefore, that the retinal vessels were of great importance for the nutrition of the eye. In glaucoma, also, he held that the obliteration of the angle of the anterior chamber was not the primary condition, but that it was antedated by sclerosis of the retinal vessels, which, in turn, was followed by interference with the circulation, oedema of the vitreous, and increase in intra-ocular pressure.

In operative technique, his suggestions on the position and dimensions of the corneal incision, in cataract extraction, on the indications for iridectomy, intra-ocular lavage, and especially on the method of operation for secondary cataract were of notable value. Aside from the lid operations above mentioned, he devoted considerable attention to the pathology of diseases of the sinuses, giving them an important chapter in his text-book. In therapeutics his greatest merit was in the re-introduction of mercurial inunctions in syphilitic affections, in place of the administration of the drug by mouth, which so frequently caused disturbance of the stomach. Later he suggested the use of intramuscular injections of oily solutions of the biniodide, a method which was adopted by many others, after its success had been proven.

His *Traité des Maladies des Yeux*, which appeared in 1894, was the crowning work of his life. In preparing this text-book, his aim was conciseness of statement, and clearness in style, for which it is a model. When a subject especially interested him, either because of its practical value, because of recent discoveries, or of personal researches, he did not hesitate to enlarge upon it. So that a number of chapters are admirable monographs, and the book has proved of immense value, not only to the student, but to the advanced ophthalmologist. Parts of it were re-written several times, and in this, too, Panas showed the same conscientiousness which was his characteristic trait in life. He applied to everything the beautiful motto of the Surgical Society: "La vérité dans la science, et la moralité dans l'art," his own life being a striking illustration of it.

NOTES AND NEWS.

ITEMS FOR THIS DEPARTMENT SHOULD BE SENT TO
DR. BROWN PUSEY, 31 WASHINGTON ST., CHICAGO.

ERRATUM.—In the article in the July issue by Dr. Charles D. Jones, entitled "The Retinal Image," the cuts numbered 2, 3 and 4 were by mistake wrongly inserted; the vertical edges of 2 and 3, and the horizontal edges of 4 should be blurred as though out of focus.

Dr. F. C. Hotz will spend August in Yellowstone Park.

The new German edition (ninth) of Fuchs' Lehrbuch der Augenheilkunde is out.

Drs. Edward C. Ellett and Pope M. Farrington, Memphis, have formed a partnership.

Dr. Chas. H. Beard will return on the 15th from his two months' vacation in the woods of California.

The corner stone of the Episcopal Eye, Ear and Throat Hospital was laid at Washington, D. C., on June 6.

An eye infirmary to cost about \$75,000 will shortly be built on the glacis of the Bangalore Fort in India.

Dr. George A. Fleming has been elected professor of eye and ear diseases of the Women's Medical College, of Baltimore.

Dr. John C. Campbell, of Toronto, Canada, has been appointed House Surgeon of the Royal London Ophthalmic Hospital.

Dr. John O. McReynolds is one of the incorporators of the recently organized Texas College of Physicians and Surgeons of Dallas.

Dr. J. Elliott Colburn has been elected professor of ophthalmology in the faculty of the Chicago Eye, Ear, Nose and Throat College.

At the last meeting of the Medical Society of the State of California, Dr. H. Bert Ellis, of Los Angeles, was elected president of that society.

At the last meeting of the Indiana State Medical Association, Dr. A. E. Bulson, Jr., was reelected, for the eighth successive time, treasurer, and was elected secretary of the Council.

Some interesting facts are brought out in Dr. Gould's article, "Sixty-eight Reasons Why Glasses Did Not Give Relief," which appeared in *American Medicine* of July 4.

Dr. A. G. Thompson and Dr. E. A. Shumway have been appointed instructors of ophthalmology at the University of Pennsylvania; Dr. J. G. Carpenter has been appointed lecturer on ophthalmology.

Dr. R. Jefferson has been elected resident surgeon at the Presbyterian Eye, Ear and Throat Hospital, of Baltimore. Dr. N. M. Heggie, who resigned that position, has opened an office in Baltimore.

We are fortunate in being able to announce that Dr. Simeon Snell, of Sheffield, England, has accepted the invitation to be the guest of the Ophthalmic Section of the American Medical Association at the next meeting.

At the medical school of Owen's College, Manchester, England, on May 25, Mr. Walter Whitehead, president of the British Medical Association, unveiled the portrait of the late Dr. David Little, which was presented by his widow.

Dr. George F. Keiper has been appointed one of the councillors of the Indiana State Medical Society, and also chairman of the committee to go before the next state legislature in behalf of a state sanatorium for consumptives.

There is a review of Dr. Veasey's new book in the *New York Medical News*, of July 4. In the *British Medical Journal*, of June 20, there are reviews of Mr. George Lawson's "Diseases and Injuries of the Eye," Mr. Claud Worth's "Squint," and Professor Greef's part of Orth's *Special Pathological Anatomy*, *Die pathologischen Anatomie des Auges*, and Mr. Cambill's "Refraction of the Eye and the Anomalies of the Ocular Muscles."

It is suggested by the *British Medical Journal* that the oculists of the school board and not those attached to the hospitals are the proper persons to determine the errors of refraction in each case, and this suggestion would, we think, apply equally well in our own school system. When the medical examiner finds any marked error of refraction, he should be able to send the pupil to an oculist provided either by the health board or by the board of education, whose special duties would be to examine the child and write a prescription for the correction of the errors. —*New York Medical Journal*.

"Prince, one of Bostock's lions, is to wear a glass eye. In Richmond he had an affair of honor which cost him his left eye. A veterinarian dressed his torn eyelids, but he had to be strapped down, and resisted so that he still bears the marks of the ropes. Bostock undertook to measure him for a glass eye, but when the keepers appeared Prince became so wild that the eye was measured as well as possible without binding him. He will have to be strapped down when the eye is put in. Bostock thinks Prince will tear it out, and a wire cage to inclose the eye will be put on him until he becomes accustomed to it."—New York dispatch in daily papers.

A Far-Sighted Myopic.—"President Roosevelt," said an old politician, "is unique in many ways. It was a favorite saying of James G. Blaine that no near-sighted man ever succeeded in politics. Yet here is Roosevelt—who must wear powerful glasses—President of the United States and in a fair way to succeed himself.

"Think back and if you can, recall any other near-sighted man who has been a leader. Blaine said there never was one, and I cannot recall one. Blaine's argument was that the near-sighted man became too narrow, from his very affliction ever to be great. Still, the President evidently is the exception to the rule."—*The Saturday Evening Post*, July 11, 1903.

The idea suggests itself that maybe the President wears a proper and full correction, and possibly he has reason for being extraordinarily grateful to his oculist.

Sudden Blindness After Paraffin Injection.—Dr. Lee Maidment Hurd reported to the Section on Laryngology and Rhinology at the New York Academy of Medicine, on May 27, a case in which there had been instant loss of vision following a paraffin injection for nasal deformity. The patient was a man of thirty-three years of age without any history of syphilis, whom he had given some months previously two or three injections of paraffin with the object of improving a nasal deformity. The man returned requesting another injection, and while this was being given he became blind. Ophthalmoscopic examination revealed the typical appearance produced by embolism of the central artery of the retina. While the possibility of this accident being a mere coincidence was freely admitted, the opinion seemed to prevail that it was directly connected with the paraffin injection. The blindness is permanent.

The Sight of School Children.—The recent access of activity on the part of the Board of Health of New York City in the matter of medical examinations of school children will undoubtedly result in the accumulation of data of much value concerning the physical condition of the average city child. That life in the city is unfavorable to development and maintenance of sight of a high degree of efficiency has generally been conceded. The dwellers on plains have much keener vision, as a rule, than those whose horizon is limited by the immediate proximity of tall buildings, so that their distant sight is rarely called into use. The examinations have been carried on in New York for too short a time, however, to make the data of much value as yet. One good result of the more careful examination has been the recognition of the grave importance of the epidemic of trachoma. The knowledge gained by means of the medical examination has led to the establishment of a special hospital for the treatment of this disease, which, while it seems not to have diminished the total number of cases, certainly must have been of value, at least in preventing the marked increase in the number which would have occurred but for this special provision.

It is interesting to note that the oculist of the London school board has found a larger proportion of children with good sight than had been expected. In the seventh grade (presumably primary) 80 per cent of the children examined have normal vision. In London those whose sight is defective are given cards which inform the parents that the child should be sent for treatment to a hospital. Unfortunately, however, the public hospitals seem not to have dealt thoroughly with the cases sent to them, so that the results have been discouraging alike to the patient and to the medical examiners. This complaint, however, does not hold good of the ophthalmic hospitals, where, as a rule, better service has been rendered. The fact that most of the cases were examples of simple errors of refraction seems to have been overlooked or ignored on account of the tedious character of the work required in correctly ascertaining the errors of refraction.

Dr. A. B. Hale, of Chicago, has been appointed on the editorial staff of *OPHTHALMIC RECORD*.

New Operation for Detached Retina.—Müller suggests the operative diminution of the bulb by the excision of the small piece of the sclera, one centimeter wide by two centimeters long. By this procedure the pathological tension and distension of the retina becomes

diminished and the exudation depending upon these factors becomes lessened. He records three cases which showed decided improvement after the operation.—*N. Y. & P. Med. Jour.*

PROGRAM OF OPHTHALMIC SECTION OF BRITISH MEDICAL ASSOCIATION, JULY 29 TO 31.

President, Henry Edward Juler, F. R. C. S., London; Vice-presidents, Jabez Thomas, F. R. C. S., Swansea; Thomas Herbert Bickerton, M. R. C. S., Liverpool; A. Freeland Fergus, M. D., Glasgow; Honorary secretaries, Henry Collen Ensor, M. R. C. S., 23 Windsor Place, Cardiff; William Tindall Lister, F. R. C. S., 30 Queen Anne street, W.

The following subjects have been chosen for discussion:

1. *Eye Changes in Relation to Renal Disease.*

Mr. Edward Nettleship, F. R. C. S., who will open this discussion, has provided the following synopsis:

Although much is already known about the eye changes in renal disease, information is still needed, both from ophthalmologists and physicians upon several points, and the following heads are suggested as furnishing matter suitable for discussion:

1. Does albuminuric retinitis ever occur in primary acute nephritis other than the kidney affection of pregnancy?

2. Cases of retinitis from lardaceous disease of the kidneys and from nephritis due to inflammation of the bladder, ureter, or pelvis of the kidney should be recorded.

3. The retinitis of pregnancy. Cases of this are desired: (*a*) In which it is known that the kidneys were diseased before the first pregnancy, (*b*) in which there is positive evidence that they were sound. It seems that most of the cases of pregnancy retinitis occur between the ages of 30 and 40, after several pregnancies and several attacks of pregnancy dropsy, and that the prognosis for life is better than in ordinary renal retinitis. These facts harmonize with the other evidences that the kidney disease induced by pregnancy is a peculiar and often recoverable affection. All cases of pregnancy retinitis should be examined for signs of established chronic nephritis. The propriety of inducing premature labor may depend partly upon the diagnosis in this respect.

4. Age and sex. If all cases of renal retinitis (except those due to pregnancy) are counted together without reference to age, the males are found to be nearly twice as numerous as the females, the proportions

being about the same as for chronic nephritis. But when the retinitis occurs early in life the sex proportions seem, from the scanty material available for comparison, to be almost reversed. All cases of renal retinitis in young subjects should be recorded.

5. Recognizing two chief factors in the production of renal retinitis—the state of the blood and the state of the retinal blood-vessels—all cases are asked for in which a condition of visible disease in the retinal arteries without evidence of kidney disease has been followed sooner or later by unequivocal signs of chronic nephritis.

6. Do the characters of the retinitis in different cases, as has been recently asserted, justify any inference as to the kind of nephritis (chronic interstitial, or chronic parenchymatous) from which the patient is suffering? Attention is here called to the importance of watching the course of the retinal disease from beginning to end, and of distinguishing between the two kinds of white opacities: the soft-edged, white, or grayish white, patches in the nerve-fiber layer, and the brilliant, intensely white, sharply defined patches composed of confluent dots situated in the deeper layers and often arranged in the familiar radiating pattern around the yellow-spot.

7. When retinitis occurs with both glycosuria and albuminuria, to which of these is it due? Retinitis in diabetic persons, whether their urine contains albumen or not, occurs later in life than albuminuric retinitis, but the relative liability of the sexes is about the same as in the ordinary albuminuric retinitis (excluding pregnancy cases).

8. Other points needing elucidation: The influence (*a*) of scarlet fever and (*b*) inherited syphilis in producing the chronic renal disease leading to retinitis; (*c*) the occurrence of renal retinitis in only one eye; (*d*) cases in which more than one attack of retinitis has been seen and watched through, with special reference to the changes left by the first attack, and to the effect of retinal atrophy upon the characters of a second attack; (*e*) when pigment spots are left by renal retinitis, why are they so often found at the periphery of the fundus; (*f*) the cause of the night blindness occasionally met with in renal retinitis; (*g*) the nature and ophthalmoscopic appearances of the choroiditis said to occur in some cases of albuminuria; (*h*) the nature of the white, opaque thickening of the coats of arteries and veins seen after some cases, and of the appearances resembling retinitis pigmentosa after others.

2. *Operative Treatment of Conical Cornea.*

Mr. Stanford Morton, F. R. C. S., who will open this discussion, has supplied the following synopsis:

It is intended that the discussion on this subject should deal only with such cases as are incapable of being sufficiently improved by other means. The points proposed for discussion will be:

- (a) The amount of defective vision indicating operation.
- (b) A consideration of the following operations, namely:
 1. Cauterization of the cone.
 2. Excision of an elliptical piece from the cone.
 3. Any other operations which have been performed.

The above operations to be discussed from the following points of view:

(i) Any condition of the eye (such as position, prominence, or flatness of the cone) which indicates the advisability of one or other operation.

(ii) Relative advantages or risks of the several methods.

(iii) Advisability or otherwise of perforation when cautery is used.

(iv) Direction in which excision of apex should be performed and the indications for the choice.

(v) Complications likely to occur in the various operations and the methods of avoiding and dealing with them.

(vi) Relative results of the different operations. Can any one method be shown to give both results?

3. *The Treatment of Strabismus.*

Mr. Gustavus Hartridge will open this discussion and has forwarded the following synopsis:

The treatment of convergent concomitant ⁺ strabismus in a scientific manner can only be approached by the consideration of the various factors which help to produce the disorder, and by a careful examination of every case, so that the value and importance of each factor may be ascertained.

We all know that concomitant convergent strabismus is a condition affecting both eyes—it is a binocular defect, and is the result of excessive innervation of the internal recti muscles excited by the associated act of accommodation. The factors which may assist in the production of squint are:

1. Hypermetropia.
2. Imperfect development of the fusion faculty.
3. Defective visual acuity in one eye.
4. The anatomical position of rest of the eyes.

These various factors do not play the same part in every case; they may not all be present, hence a careful and systematic examina-

tion of each case is essential. The objects to be obtained by treatment:

1. The correction of the deformity.
2. Establishment of binocular vision for all distances.

The treatment may be divided into:

- Optical.
- Orthoptic.
- Operative.

The importance of an exact optical correction is beyond all question, and in many cases results in a complete cure. Orthoptic exercises are of great value in many cases, but must be commenced early. They consist of:

1. Covering up the fixing eye for a certain time daily.
2. Practice with a stereoscope.
3. Bar reading.

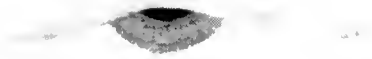
The optical and orthoptic treatment must be faithfully carried out for twelve months before any operative treatment can be entertained. When an operation has been decided upon we have to decide. What operation shall be undertaken? We have at our disposal four operations:

- (1) Simple tenotomy of one or both eyes.
- (2) Simple advancement.
- (3) Tenotomy with advance of the opponent muscle.
- (4) Stretching of one of the muscles.

The chief points on which I would invite discussion are:

1. When is an operation necessary or justifiable?
2. What operation gives the best results?

Arrangements will be made for the exhibition of rare ophthalmoscopic and other cases in the Section. It is proposed, also, to have a special ophthalmological museum for specimens, drawings, instruments, etc.—*British Med. Journal*.



Tuberculosis of the Conjunctiva. The upper figure represents the earlier; and the lower figure the later appearances.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XII. No. 9. CHICAGO, SEPTEMBER, 1903. NEW SERIES.

ORIGINAL ARTICLES.

TUBERCULOSIS OF THE CONJUNCTIVA.*

BY EDWARD JACKSON, M. D.,

DENVER, COLO.

(Illustrated with colored print.)

The case herewith reported illustrates certain difficulties in the diagnosis of this affection, and the accompanying water color sketches seem worthy of reproduction because there seem to be few good illustrations of the appearances the conjunctiva assumes in this disease. There is a picture by Wurdemann of one of Burnett's cases in the System of Diseases of the Eye, edited by Norris and Oliver, and some by Eyre in the Transactions of the Ophthalmological Society of the United Kingdom, Vol. xvii, p. 8. In the recent work of Ramsey no attempt is made to represent it. The same is true of Haab's Atlas of External Diseases of the Eye. Moreover, the appearances here represented differed materially from those reproduced by Wurdemann and Eyre, and which are more commonly encountered in this condition.

E. L., aged ten years, a girl who had previously enjoyed good health, was brought to me January 2, 1903. Six weeks previously it was noticed that her left cheek was swollen, the swelling extending down the neck. She had fever and vomiting, and was decidedly ill. Two weeks after that, it was noticed that the lids of the left eye were slightly swollen; and two weeks later she was taken to an oculist of large experience, who made the diagnosis of syphilis and placed her upon the use of mercurial inunctions. Meanwhile the vomiting had ceased, the fever had diminished, and her general condition had improved so that she was thought to be in almost her ordinary health. But she had continued to lose weight, and the swelling of the neck, cheek and lids continued about the same.

*Read before the American Ophthalmological Society, May, 1903.

Vision was R. $\frac{4}{4}$ mostly, L. $\frac{4}{4}$ partly. The right eye was normal in all respects, and has so continued. There was marked swelling of the lower lid of the left eye and slight swelling of the upper. The whole cheek on that side was slightly swollen, and there was a swelling which in location and extent would be well represented by placing the child's hand spread out, with the center of the palm just behind the angle of the jaw. The swelling was composed of enlarged lymphatic glands rounded out by œdema. The separate glands could be readily recognized, although they were comparatively soft.

There was very little pain or soreness either about the eye, or in the swelling at the angle of the jaw. There was no photophobia or excessive lacrymation. The eye-ball was free from hyperemia. The patient was rather anæmic and was losing weight, about two pounds a week. There was no enlargement of lymphatic glands in other parts of the body, and no history or other symptoms pointing to syphilis. The family history was good, except that the mother suffered from scrofulous glands in childhood, and presented extensive scars therefrom upon her neck.

Upon everting the lids the appearances shown in the upper figure were exhibited. In the upper lid there was general hyperemia and slight thickening of the conjunctiva; with numerous points like minute trachoma granules. But the surface was generally smooth. Such appearances might be presented during an acute catarrhal conjunctivitis.

The changes in the lower lid were very striking. The thickening was greater. Toward the margin of the lid there were masses like large trachoma granules and toward the retro-tarsal fold much apparently fatty, necrosed, almost white tissue. The granules when looked at closely, bore some resemblance to miliary tubercles. Each had a gray translucent center with minute vessels entering it from a surrounding vascular zone. Between the granules and on the surface of the white tissue lay a slight, gray sticky discharge. No tubercle bacilli were found in it. One week later this discharge seemed to be less.

January 16 the discharge was again examined, and upon one cover glass two typical tubercle bacilli were found by Dr. W. C. Mitchell, Denver City bacteriologist. After this, bacilli were found repeatedly, but never more than three on one cover glass, and in about half the preparations none at all were discovered. The patient was shown at the meeting of the Colorado Ophthalmological Society.

The appearances presented changed very slowly. February 17 it

is noted, there was less swelling of the lower lid, less white on its conjunctival surface, and the granulations of the tarsal portion were smaller. By March 11 the patient had stopped losing weight, and had gained a little. The swelling of the glands had diminished and the glands were firmer to touch.

April 20. The lower lid is still less swollen. There is much less of the white, necrosed tissue on its inner surface. The granules are smaller and look more like those of trachoma. The upper lid contains a few larger granulations. Both lids continue soft. The lower lid when fully everted presents a distinct ridge formed by pressure into the sulcus between the lid and eye-ball. In two cover glass preparations I found but a single tubercle bacillus. The appearances at this time are shown in the lower figure of the colored plate, and the individual granules are somewhat shrunken, and firmer and decidedly more vascular. The patient has gained but little in weight, but seems in every other way better, although still easily tired and irritable.

The local treatment has been confined to the use of a wash of trikresol 1 to 1500, and iodoform ointment, 25 per cent. The general treatment has been that for tuberculosis, rest, abundant food, outdoor living, cod-liver oil and tonics.

The swelling of the glands was discovered two weeks before it was noticed that anything was wrong with the eye. But the condition of the lids when first examined, and their very slow change while under observation, make it certain that the conjunctival lesions had existed many weeks or, perhaps, months before the swelling of the glands was noticed. It is probable that the conjunctival lesion was primary, but remained unnoticed until the invasion of the lymphatics gave rise to rather acute symptoms.

Of the diagnosis of syphilis in this case, little need be said. The lesions did not resemble syphilitic disease of any kind; and the glandular enlargement was strictly confined to the group immediately connected with the lid.

When first seen there was little reason to mistake the condition for trachoma. But at the present time there is quite a good deal of resemblance to trachoma, and such a mistake would be very likely to be made, if the glandular swelling and general condition were not taken into account. When the case was first seen and the history taken (before the lids were everted) the swelling of the lids, the swelling of the glands and the acute sickness very strongly suggested Parinaud's conjunctivitis. The everted lids presented a picture quite different from that disease. But if they had shown the large

granulation masses, frequently seen in conjunctival tuberculosis, it would have been quite impossible on first seeing the case, to exclude Parinaud's conjunctivitis.

Indeed, since we are still ignorant of the cause and essential character of this last disease, it might be worth while to consider the possibility that it may be a form of tuberculosis of the conjunctiva. Its monocular character, the glandular enlargement, the fever and acute general disturbance, all accord with such a supposition. The uniformly favorable prognosis for Parinaud's conjunctivitis, may be held to negative such an hypothesis. But the prognosis of conjunctival tuberculosis is by no means uniformly unfavorable; and it is quite possible that a particular form of it may usually end in recovery.

THE SYSTEMATIC USE OF CYLINDERS IN MAKING THE SHADOW TEST.

BY ALEXANDER DUANE, M. D.,

NEW YORK.

It is no new idea to use cylinders in making the shadow test. I believe that it is as much as nine years ago since I heard Dr. W. E. Lambert advocating this practice and explaining its utility in connection with his refractometer. But cylinders are not used as much as they should be, and several of our best known treatises on refraction and the shadow test contain little or no reference to their employment; yet I am convinced that their *routine* use is of eminent importance in the diagnosis of astigmatism as enabling us to determine with the utmost precision (a) the amount of astigmatism, (b) the axis of astigmatism, and (c) the exact spherical correction.

What appears to me the best method of applying cylinders in skiascopy can be most readily shown by a concrete example.

Using the concave mirror* at one metre I find a movement against the mirror in all meridians. I add convex glasses. When a convex + 2 D. has been added the reflex becomes quite bright and begins to form a rather distinct band running in the meridian

* I habitually use the concave instead of the plane mirror in skiascopy. While the plane mirror is perhaps easier to apply, and gives a more readily observable reflex, I am convinced that the concave mirror affords more accurate results. This is particularly so in oblique astigmatism, when, as we attempt to move the mirror either in the direction of the band of light or at right angles to it, the cross-shadows, which are so confusing, are with the plane mirror made more conspicuous and more difficult to evade.

of 75° or 80° . I now move my mirror in the direction of this meridian only and keep adding + glasses, until in the meridian of 75° I get the shadow just beginning to move with the mirror. Suppose it takes +2.75 to do this. No. +2.75 then is the reversing glass for the meridian of 75° . I now have a quite sharp band of light running in the direction of this meridian.

Leaving the +2.75 on, I now move the mirror at right angles to the band of light, *i. e.*, in the meridian of 165° , and find that the movement of the shadow is still against the mirror. There being evidently quite a little astigmatism, I take a strong cylinder, say +2.00, and place it with its axis at 75° (*i. e.*, in line with the band of light), and then again moving my mirror in the meridian of 165° , see if reversal of the shadow has yet been secured. If not I replace the +2.00 with stronger cylinders. Finally with a +3.50 cylinder I find that I just succeed in making the shadow go with the mirror in the meridian of 165° .

If this cylinder of +3.50 at 75° truly represents the amount and axis of astigmatism, then I should, with my two reversing glasses (+2.75 spherical \ominus +3.50 cylinder), get the following:

(a) At one metre there should be a bright circular reflex uniformly illuminating the whole pupil.

(b) The shadow should move with the mirror in all meridians alike and precisely in the same line as the mirror moves, not swerving from the path of the latter; that is, not making any oblique movement.

(c) When I advance to just within one metre the shadow should begin to move against the mirror in all meridians and for all alike at precisely the same distance from the eye.

If my correction of the *astigmatism is wrong in amount, e. g.*, if the cylinder is +3.25 instead of +3.50, then, as I approach the patient from a distance of one metre, I shall at a certain distance from him find that in the meridian of 165° the shadow moves with the mirror, while in the meridian of 75° it still moves against it. When this happens I simply change the strength of the cylinder until reversal takes place at just the same distance from the eye for all meridians alike.

If my *cylinder is at the wrong axis, i. e.*, if it ought to be at 80° instead of 75° , then as I sweep the mirror from side to side or up and down, I will notice that the shadow, instead of traveling along the same line as that in which I am moving my mirror, makes a skew or oblique movement, sliding off, as it were, to one

side or the other. When this happens I shift the axis of my cylinder one way or the other, until this obliquity of movement disappears.

Finally, if my *spherical alone is at fault* then reversal takes place evenly indeed in all meridians, but either too close to the eye or too far from it. I then alter the strength of the spherical accordingly, until reversal takes place at just one metre.

In making the test in this way it is essential for the observer to get into the habit of *constantly varying his distance from the patient*—moving his head slightly backward and forward so as to be sometimes just within a metre's distance from the patient, sometimes just beyond it. I regard this forward-and-back movement of the head as a very important part of the shadow-test, however conducted. In other words, I do not think it sufficient merely to stand at one metre from the patient and determine that at that distance we get reversal with a certain glass. We should, in addition, show by moving our head forward a little that this glass no longer produces reversal when we have got a few inches closer to the patient's eye and have thus passed his far-point. A little practice soon makes one quite expert in doing this. Thus with a patient who is truly hyperopic 2 D, we find when we put a +3 D glass before his eye that as we gradually recede from him the shadow keeps moving against the mirror until we are very nearly a metre off, then for a very short space the movement is indeterminate; and again, just beyond this region the shadow moves clearly with the mirror. The patient's far-point lies in the space of indeterminate movement lying between the point where the shadow begins to move with and the point where it begins to move against the mirror. The closer we can get these points together the more precisely shall we estimate the position of the patient's far-point and hence his refraction. It takes only a little practice to so sharpen our powers of observation as to enable us to say positively that at one point the shadow moves distinctly with the mirror and at a point not four inches off moves distinctly against it. This, when reversal is secured at one metre, means precision in estimating the refraction to within $\frac{1}{8}$ D. If, on the other hand, we are content with the mere statement that reversal takes place at one metre, without finding out whether it may not also take place at some little distance inside of this point, we may be in error by at least $\frac{1}{4}$ D.

I would not speak of this point had I not found so many employing the shadow test who do not avail themselves of this accu-

rate means of fixing the far-point, and who even, indeed, seem to be unaware of the principle underlying it.

While this way of determining astigmatism with the shadow test by cylinders may seem a little more circumstantial than that by the use of sphericals alone, one for one meridian and one for the other, it really takes very little more time and is so greatly superior in point of accuracy that the additional minutes given to it are minutes well spent. Moreover, I usually find that time is saved in the end, for it has been my experience, over and over again, to find that the glass thus shown by skiascopy was the one that the patient upon subjective testing immediately accepted—absolutely no change, either in the strength of the glasses or in the axis of the cylinders, being tolerated. I have thus often been enabled to shorten the subjective testing—always so wearisome to surgeon and patient alike—to the absolute minimum.

I utilize the same test, applied in the same way, as a check in *ascertaining whether the correction found with the trial lenses is probably the best obtainable*. Thus, suppose the glass found is $+2.50 \text{ } \ominus +1.50$ cylinder 90° .

I add $+1.00$ to this, making it $+3.50 \text{ } \ominus +1.50$ cylinder 90° . This should make the patient myopic 1 D. If he really is so, precise reversal will take place with this glass for all meridians alike at one metre. If, however, the spherical is of the wrong strength, or the cylinder is incorrect in either strength or axis, I shall discover the error in the way just mentioned and can remedy it in a moment. I have thus, in a number of instances, been able to decide as to the proper glasses and particularly as to the proper axis of the cylinder, when the patient's answers were not satisfactory.

This method is readily *demonstrated and practiced on the skiascopic eye-model*. The latter, when used for this purpose, should have an additional slot in front of it for holding the correcting cylinder. If in this case we produce an artificial astigmatism by a cylinder of say -2 D, it is easy to show how, when reversal has been secured in the axis of the astigmatism by means of the proper spherical, a rapid and accurate estimate of the astigmatism can be made by a $+2$ cylinder placed in the additional front slot. If this cylinder is put at 5° or 10° from the right axis, the skew movement above described can readily be evoked, and if a cylinder greater or less than 2 D is used, the failure to correct the amount of astigmatism can easily be shown by the fact that, as we approach

the eye, we secure reversal in one meridian before we do in the other. It is easy in this way to prove how accurate the test is when thus conducted—to show, for example, that it can detect errors of $\frac{1}{4}$ D or even $\frac{1}{8}$ D in the amount of the astigmatism and also very slight errors in the estimation of the axis.

I am sure that those who have once familiarized themselves with the details of the method just described will not readily return to the old way of estimating the refraction in skiascopy by sphericals alone.

AN UNCOMPLICATED FOURTH-NERVE PARALYSIS OF TRAUMATIC ORIGIN.

BY JAMES W. DUNN, B. S., M. D.,

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All the muscles engaged in rotating the eyeball, excepting the rectus externus and the obliquus superior, being innervated by one nerve, the motor oculi, it is a rare thing to find an uncomplicated paralysis of one of these muscles. It is not impossible, though, that such a paralysis should exist, even in the set of muscles supplied by the third nerve, either from disease or traumatism. When this occurs it implies disease of, or injury to, the branch of the nerve supplying that one muscle, and the lesion is, therefore, always situated very peripherally. No basal or central disease or injury can cause such a paralysis. However, paralysis of the rectus externus or obliquus superior can result from disease in, or injury to, the patheticus or abducens, in the trunk of either, or at its nucleus of origin. This, it is evident, can not occur very often in a form uncomplicated by disturbance of other eye muscles, when we consider the proximity of the points of origin of the three nerves mentioned and their almost parallel courses to the sphenoidal fissure, and thence to their different muscles in the orbit. That such cases are very rare is recognized by all oculists, but that they do occur is proven by the following cases taken from Norris & Oliver's "System of Diseases of the Eye," wherein due credit is given each author, and proper references to the places of record are made:

Nieden has recorded a case in which fascicular paralysis of one fourth nerve was the only focal symptom to which a tumor of the pineal gland gave rise.

Enlenberg has on record a case of basal paralysis of the sixth nerve from a stab in the temporal region, this being the only cranial

nerve involved, and the paralysis being due to division of this nerve below the posterior clinoid process.

Leber has reported two cases of paralysis of the fourth nerve from falls on the head, in which the paralysis was the main symptom.

The following case will do very well as a companion one for those reported by Leber. It is unique in that the paralysis of the obliquus superior was the *only* symptom, after the disappearance of the dizziness caused by the accident:

Mr. Ed. H., of this city, fell on the slippery pavement January 14, 1903, striking the back of his head very hard; was unable to get up or to stand alone at first, but, after a few minutes, walked a block to his room, assisted by friends, where he lay down and soon apparently recovered. Two or three hours afterward he noticed something wrong with his vision. It was then night, and he went to sleep thinking he would be all right soon, but noticed next morning he saw double in nearly all directions. The diplopia was in the lower field, and, of course, very annoying as his work was mostly on books. Still thinking the trouble would soon disappear he did not consult anyone till the third morning after the accident, when he came to my office. I diagnosed an uncomplicated paralysis of the right superior obliquus from injury of the right patheticus by concussion. The following figure, somewhat modified, from deSchweinitz and Randall, shows the field of single vision and of diplopia; also the position of the image of each eye at three points in the field of double vision:

Aghd field of binocular single vision normal eyes.

Abcd field of binocular single vision in case.

Bghe field of diplopia in same.

Shaded images belong to right eye.

Other than the above diplopia there were no symptoms, either local or general, save a contusion on back of the head just above the occipital protuberance.

The treatment instituted was iodide of potash and mercury internally, and galvanism. This was soon changed to the iodide alone and faradism applied to the eyeball above and to the nape of the neck. There was no improvement till the end of the fourth week; then gradual improvement till the first of April. The case then continued the same till the afternoon of April 30. The patient was then walking on the river front and suddenly realized that his double vision was gone. Since then he has had no annoyance.

Considering the fact that there was no other disturbance save the paralysis of the fourth nerve there could have been no other lesion but one involving this nerve either in its trunk or at its origin. This, of course, precludes the possibility of fracture at the base of the skull or in the sphenoidal fissure. Leber, in his cases, concludes that the lesion in each was rupture of the trunk of the fourth nerve by concussion. Such, likely, was the nature of the injury in the case here reported.

WILL CERTAIN OCCUPATIONS IN TIME AFFECT THE CYLINDRICAL CURVATURE OF THE EYEBALL?

BY PAUL GUILFORD, M. D.,

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It is well known that in hyperopia the rule of the axis of corneal curvature is about 90 degrees, while in myopia the rule of the axis is about 180 degrees.

A recent order of one of the railroads centering in Chicago that all locomotive engineers over fifty years of age should have their eyes examined, brought under my observation, in association with Dr. Frank Allport, consulting oculist of the railroad, a series of twenty-two of these engineers.

Of these two were myopic, two were myopic in one eye and hypermetropic in the other, and eighteen were hypermetropic. According to the rule we should expect to find the axis of the corneal curvature to be about 90 degrees in the majority of these cases. In eighteen, or 82 per cent, the axis was at or near 180 degrees, in three, or 14 per cent, the axis was at or near 90 degrees, and one had no astigmatism. In three of the myopic eyes the axis was 90 degrees, or against the rule. The average age of these men was 57 years and the average time of service as engineers was twenty-seven years.

Does age tend to change the recognized rule of the axes of corneal curvature?

I have examined the records of one hundred consecutive patients over 50 years of age engaged in general business pursuits and find the following:

In forty-seven the axis of astigmatism was at or near 180 degrees; in forty-seven the axis was at or near 90 degrees; and in six the axis was near 90 degrees in one eye and near 180 degrees

in the other. In these cases the axis was equally divided between 90 degrees and 180 degrees, whereas the engineers showed 82 per cent in favor of the horizontal axis.

Eliminating age as the active factor, are there any conditions peculiar to the life of a locomotive engineer that will explain this preponderance in favor of the horizontal axis?

An engineer is on active duty in his cab for perhaps ten or fifteen hours a day. He sits with head out of the cab window, with eyes half shut, intently looking ahead and receives straight in the face the full strength of the wind. He is constantly on the watch for signals and to see that the track is clear, and sometimes maintains these conditions of intent watchfulness for hours at a time, his half closed eyes being meanwhile constantly subjected to the full force of the wind. Running at the rate of from thirty to sixty miles an hour the force of the wind must be very great, even on a comparatively quiet day, and this must, of course, be greatly increased in the event of strong head winds.

That this force will, in time, affect the corneal curvature of the eyeball is, I believe, not only possible but probable. The orbicularis palpebrarum or sphincter muscle which surrounds the circumference of the orbit and eyelids also bears a part in this shaping of the eyeball. In facing a strong wind one instinctively half closes the lids to protect the eyes from the discomfort of the wind and from the danger of small particles of dust that may be in the air. This contraction of the orbicularis muscle in the effort to narrow the palpebral fissure draws the lids more closely against the eyeball and exerts a force, above and below the horizontal diameter of the globe, that tends to flatten the cornea at these two points without affecting the central exposed portion. This exposed portion, less affected by the combined pressure of the lids and wind, retains more nearly the normal curvature of the eyeball and becomes the axis of corneal curvature.

It would hardly seem probable that this change would take place in a few years, but the engineers examined in this series of cases are over 50 years of age, and have been in active service on an average, twenty-seven years.

That this time is sufficient to change the rule of the axis of corneal curvature is shown by the fact that among these engineers 82 per cent showed their astigmatism to be in the horizontal axis, while among men of the same age in general business pursuits but 47 per cent showed the same axis.

If this is true in the case of locomotive engineers why may it not be true also, to perhaps a lesser extent, in the case of all people engaged in out-of-door occupations, and exposed to the pressure of high winds, such as motormen, farmers, etc.?

TRANSLATION.

YOHIMBIN: A NEW LOCAL ANESTHETIC.*

TRANSLATED BY DR. CASEY WOOD.

Magnani had already published a communication touching the anesthetic action of yohimbin (Spiegel) in No. 35 of the *Clinica Moderna*, 1902, in which he reported that, even as a weak solution, it induced anesthesia of the conjunctiva and cornea when instilled into the conjunctival sac. His attention had been attracted to yohimbin by its property of producing hyperemia in the conjunctiva even when injected subcutaneously at quite a distance from that tissue. The idea occurred to him that this property might be utilized to stimulate the metabolism and promote the processes of nutrition and repair in this part of the eyeball when debilitated from local or general affections. He used at first a 1 to 300 aqueous solution of yohimbin hydrochlorate, but found later that a 1 per cent solution is preferable. He added to the mixture a drop or two of chloroform when he wished to preserve it for any length of time. As he previously announced, one, two or more drops of this solution instilled into the conjunctival sac causes a certain amount of smarting, especially when the solution is fresh, which is most pronounced in the region of the lachrymal caruncle. The smarting rapidly subsides, owing to the fact that the bulbar conjunctiva is anesthetized in a minute to such a degree that reflex closing of the lids can not be induced by touching it. In the course of four more minutes the cornea commences to lose its sensibility also, and by the end of ten minutes from the first instillation the anesthesia is complete and profound. This state persists for half an hour, after which sensibility gradually returns and is normal again by the end of the hour. Accommodation is not influenced by the alkaloid, and the iris merely shows a slight sluggishness in its movements, possibly due to engorgement of the blood in its vessels. There is no regularity as to the shape, size or reactions of the pupil when the eye is under the influence of yohimbin; sometimes there is myosis, sometimes mydriasis. The hyperemia

*C. Magnani. Un nuovo anestetico. *Annali di Ottalmologia*, XXII., No. 5-6, p. 322, 1903.

of the conjunctiva appears in a few minutes, particularly when a fresh solution is used; it is pronounced and lasts for a couple of hours, but, with a solution made several days before using, it develops more slowly and is less intense and less lasting. The addition of chloroform to the solution does not seem to modify the anesthetic action, but may aggravate the first smarting.

These results of Magnani's first experiments with yohimbin were confirmed by later experience, reported at the recent Italian Congress of Ophthalmology. From that date to this he has used yohimbin almost invariably for anesthetizing the conjunctiva. One day it occurred to him that possibly the drug might induce anesthesia when injected subcutaneously. Articles by Loewy, Mendel, Oberwarth, Berger, Eulenberg and Maramaldi proved the non-toxicity of the drug in the form of the hydrochlorate, and this statement was corroborated by experiments on his own person. For example, he injected into his forearm .25 cc. of a 1 per cent solution. In a few seconds he could stick the needle again and again into the slightly swollen region, about a centimeter square, where the injection had been made. No pain was experienced, while the regions around were normally sensitive. Half an hour after the injection he made a deep incision into the skin with a bistoury down to the aponeurosis of the muscles, not experiencing the slightest sensation of pain, and at the end of an hour the lips of the wound were sutured with wire, still without pain. Continued tests showed that the region did not regain its normal sensibility for an hour and three-quarters. The solution had been made the day before.

As it stands, when solutions of yohimbin are a week old or more, the drug loses its anesthetic power, in that the anesthesia does not last so long.

After the writer had applied these tests, he did not hesitate to use the alkaloid in all minor operations on the lids, in which the age and docility of the patient allowed chloroform to be dispensed with. The absence of danger from intoxication, the duration of the anesthesia (allowing long operations to be performed without any suffering by the patient while the tone of the muscles of the part is retained) and the fact that operative procedures can be controlled and guided by voluntary movements which the patient makes in accordance with directions given by the surgeon—these are advantages not possessed by any other anesthetic. Nearly every other anesthetic has its drawbacks. Recently, Schultz published in the *Archiv f. Augenheilkunde* a careful comparative study of the various alkaloids

used for this purpose in ocular therapeutics, cocain, apomorphin, chloral hydrate, benzoltropin, stenocarpin, strophanthin, erythroplein, tropacocain, eucain, holocain, anesin, extract of suprarenal capsule and toad poison.

Speaking of cocain, he laments the drying of the epithelium and the cloudiness of the cornea, which are sometimes noted and which occasionally persist. Symptoms of general intoxication not infrequently follow its subcutaneous injection. Abadie has published a case in which the subconjunctival injection of .04 gm. of cocain in a woman of seventy-one was followed by dizziness, syncope and death. Rogmann has likewise observed a case of intoxication for eight hours after injection of 4 cg. into the eyelid. Mellinger says that the vasoconstriction induced by cocain retards the cicatrization by primary intention of a wound in the cornea. The mydriasis interferes with iridectomy and with operations for cataract; in the former, because it facilitates prolapse of the iris, and in the latter because it renders section of the corneal flap more difficult. In conclusion, Schultze remarks that cocain has many disadvantages and a substitute for it would be very desirable, and that among all the anesthetics he has studied he approves of only tropaeocain, eucain and holocain. The latter is more toxic than cocain, while eucain, on the whole, does not offer superior advantages, and tropacocain, therefore, is the only one left, and the anesthesia, with this agent, does not last longer than the twenty minutes. In the same way, Mobilio, in a recent article in the *Archivio di Oftalmologia*, reports comparative studies of dionin, peronin, nirvanin, tropacocain, holocain and coca-suprarenalin. Like every one else, he commends the use of dionin as an analgesic, but, in regard to the anesthetics, he would exclude peronin and nirvanin from ophthalmic practice on account of the intense irritation and marked chemosis which they induce. Referring to tropacocain and holocain, he says that although they do not produce cloudiness or loss of epithelium in the cornea, yet the inconstancy of their action and the smarting which they induce are great drawbacks. In respect to peronin, Guaita also concludes (from his research described in the *Annali di Ottalmologia*) that its use should be restricted to enucleation and exenteration of the eyeball, in which operations the vascular congestion and conjunctival edema, which it induces, are of little moment and rather favor the detachment of the conjunctiva from the eyeball. Comparing these observations with his own experience with yohimbin, Magnani emphasizes the fact that the latter behaves like tropacocain, but the constancy of its action, the long duration of the

anesthesia and the lack of toxicity, are advantages so superior that he thinks they should entitle it to the preference over other anesthetics in many cases. He adds that while his article was in press, Loewy and Mueller published in the *Muenchener Medical Wochenschrift*, No. 15, an article dealing with the value of yohimbin as an anesthetic. Their experiences on animals, applying the yohimbin to the mucosæ, the sciatic and vagus, confirm his experiences with the conjunctiva and the cornea. They announce that it acts like cocain. Salomonsohn has also recently asserted that yohimbin might be applied to advantage in many cases, although he thinks that the hyperemia induced rather detracts from its value. Finally, Haike, in the *Therapie der Gegenwart* for May, recommends it on account of its non-toxicity for the removal of the turbinated bodies, and of granulations and polyps in the auditory canal, in which the anemia and the shriveling caused by the cocain are obstacles to successful operation.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XII, No. 9. CHICAGO, SEPTEMBER, 1903. NEW SERIES.

EDITORIAL.

EMILE JAVAL'S "AMONG THE BLIND."

We have received, with the compliments of the illustrious author, and read with absorbing interest, Dr. Emile Javal's *Entre Aveugles*; or, Advice to Those Who Have Recently Lost Their Sight. It is an 18mo volume of 208 pages, published by Masson, of Paris, and as the writer tells us in the preface, is intended as much for the family and friends of the recently blind adult as for the unfortunate himself. It need not be said that the peculiar attraction of the work lies in the fact that it is prepared by an ophthalmologist of wide experience who has himself braved the ordeal of comparatively sudden blindness after he had passed middle life. Not only has he given his own experience, but he has conducted an exhaustive enquiry into the observations made and the methods employed by intelligent blind people the world over. These form the basis of twenty-eight chapters on such subjects as domestic occupations, professional occupations, meals, watches and clocks, walks about town and country, travels, the use of the tricycle tandem, hand writing, relations to external objects, writing machines, the phonograph, alphabets for the blind, correspondence, memory training, use of tobacco, marriage, the health, personal habits and hygiene of the blind, the sixth sense, etc.

We have no space to quote extensively from the work, but a few observations ought not to be passed over. One form of slavery, says Javal, from which the blind person escapes with difficulty, is his absolute dependence upon the assertions of others. If, therefore, he does not possess the entire confidence of those about him life becomes intolerable. Never lie to a blind man, with ever so good intentions, because in the attempt to do him a temporary service you will destroy in him his confidence in you and, consequently, his feeling of security. No statement is more false than that the loss of one sense augments the acuity of others. It is contrary to the law of sensation and to our experience to hope, for example, that a blind person, by mere exercise, will hear a watch tick at a greater distance than he did when he first lost his sight. What really hap-

pens is that he learns to observe with his remaining senses facts that, before he became blind, were of secondary importance.

The adult, becoming blind, should continue his work whenever it is at all possible and should endeavor to conquer the difficulties his blindness puts in his way. In the home life of the blind man the saying of Franklin is singularly appropriate: "A place for everything and everything in its place." To have oneself read to in an audible voice is one of the chief resources of the blind, but how unsatisfactory when compared with one's own reading!

In chapter XIV he describes his "writing board," arranged upon physiologic principles and described in the *Révue Scientifique*, May 21, 1881, vol. 28, p. 649.

It is not a fact that because blind people do not see the smoke arising from the lighted cigar, cigarette or pipe they do not enjoy those consolations granted to normal-sighted devotees of the goddess Nicotina. Think, for example, of the number of persons blind from birth, or of those who have later become blind, who regard the after-dinner cigar as one of the necessities of life.

In the great majority of cases the marriage of blind persons is not contraindicated so far as the fear of transmitting the blindness is concerned.

In an appendix Javal devotes a couple of chapters to suggesting certain improvements in the (letter) characters used by the blind—to facilitate the reading of books especially. It has long seemed to us that there is plenty of room for improvement in this direction, and we feel that Dr. Javal's recommendations will not be made in vain.

His style is simple, unusually clear and singularly free from dogmatism. Not only should this book interest every physician but physiologists and psychologists will surely read with profit the chapters on the "sixth sense" and "the psychology of the blind." Finally, a chapter is devoted to addresses of manufacturers, book sellers, institutions, hotels, associations in Great Britain and on the continent likely to prove useful to blind adults. We would suggest to Dr. Park Lewis, who in 1893 so well translated Maurice de la Sizeranne's "Through Blind Eyes," that the American profession would appreciate a second good work in the same line—a translation of Javal's *Entre Aveugles*.
C. A. W.

A NEW OPERATION FOR RETINAL DETACHMENT.

The eye has wonderful ability to withstand injury. We have performed every conceivable operation on the anterior segment, and now Kroenlein's operation of temporary resection of the bony or-

bital margin for the exposure of the posterior segment of the globe has made it possible to attack a portion of the eyeball that has heretofore been inaccessible except when the globe was in extreme rotation. Dr. L. Mueller, of Vienna, according to his article in the *Munchener Med. Wochenschrift*, 1903, No. 23, has taken advantage of Kroenlein's operation for exposing the equatorial region of the eyeball in its primary position. He then performs scleral resection for the cure of retinal detachment. The operation he proposes is impossible if the eye is rotated, because of the muscular tension on the globe causing escape of vitreous, but with the eye in its primary position he finds it possible to remove a large piece of sclera without any loss of vitreous. Mueller has operated upon seven cases, four of which he describes. They were all old cases of retinal detachment, and one was so advanced that secondary degeneration had taken place. It was not expected that vision would be materially improved. In all his cases except the one with secondary degeneration of the retina (stretching and shrinking of the retina), re-attachment took place in a few weeks, and the field of vision improved. He believes that the results obtained are permanent.

His operation is briefly described as follows:

1. Preparatory operation on the temporal orbital edge as described by Kroenlin, only somewhat modified, as it is not necessary to go very deep into the orbit.

2. Exposure of the globe in the equatorial portion by temporarily cutting the external rectus and inferior oblique muscles. The distal ends of the muscles are held with a suture which is laid to one side until the operation on the sclera is completed, when the muscles are reunited.

3. Operation upon the globe. The piece of sclera to be resected is about 8 to 10 mm. wide by 16 to 20 mm. long, and lies between the equator and the external rectus, and converges to a point above and below. The sclera incised comes away from the choroid readily, and as soon as removed several fine, strong sutures are placed through the edges of the scleral walls and are left stretched over the choroid. The choroid is now punctured in the lower angle of the wound in order to allow sufficient subretinal fluid to escape to enable the scleral edges to come together. The choroid then contracts like an inflated rubber balloon from which air has been allowed to escape, and slips smoothly underneath the sclera. The scleral sutures are now tied. The operation is completed by reuniting the severed ocular muscles and closing the external wound by suturing the periosteum and skin. Bandage.

MELVILLE BLACK.

REPORTS OF SOCIETIES.

TRANSACTIONS OF THE FIRST ANNUAL MEETING OF THE MEXICAN OPHTHALMOLOGICAL SOCIETY, HELD IN THE CITY OF MEXICO. MARCH 27-31, 1903.

President Licéaga, director of the National School of Medicine, presided.

Chánez, president of the society, reviewed the history of ophthalmology in Mexico. In the eighteenth century reclamation of cataract was practiced. Munoz early in the nineteenth century, with instruments of his own device, released the lens. Vértiz established the first clinic for eye diseases. Carmona y Valle introduced the ophthalmoscope. Ricardo Vértiz was the first to restrict his practice to the specialty; he founded a clinic and was the first to become in the faculty, professor of ophthalmology. Chánez is his successor at the Ophthalmic Hospital with forty-six beds. In 1893 the local society was founded.

Lopez, Mexico, read his paper on the *history of enucleation and preparation of the stump*. He gave his preference for the insertion of fatty tissue within Tenon's capsule, taken from the patient's gluteal region.

Vélez, Mexico, quotes De Schweinitz statistics and places Mule's operation below Barraquer's (implantation of fatty tissue from the patient's gluteal region).

Uribe-Troncoso, Mexico, in discussion, supported these views.

Gama, Mexico, thought too little attention was of late paid to the earlier operations for preserving the vitreous. He liked the fat implantation, however.

Chánez, Mexico, performed enucleation only for neoplasms. He preferred keratectomy.

Uribe-Troncoso read a paper on *Composition of the Aqueous Humor in Senile Cataract*. In several cases the inorganic (mineral) constituent had risen even to 29.37—organic constituent remained normal. In hypermature cataract the mineral constituent sank. He could not support the Leber theory that albumin was increased in cataract formation. Nor did he agree with Peters' statements that the salt constituent was constantly increased. Uribe thought it varied. He thought it most reasonable that the salts were at first increased.

Alonso, San Luis Potosi, reported a *case of burn to the cornea by caustic potash* O. D., and *traumatic myopia*, O. S. In the latter eye the lens was extracted with visual result of 1/4.

Obarrio, San Salvador, reported an *unusual case of pterygrum* and called attention to the vascular zone at the corneal edge. This must be obliterated by the cautery if the pterygrum is to be prevented from recurring.

Lopez, Mexico, proposed two operations—one for small, the other for large pterygia. The first binds the head and neck of the growth beneath the conjunctiva when the edge is cauterized. The second does not extirpate all the growth but leaves the upper and lower third.

Chacon, Mexico, *Comparative Value of Optometric Scales; the need of unifying them and of adopting the metric system*. He analyzed the scales from Nicati's efforts, pronouncing them somewhat short of the truly scientific. He accepts as an improvement the broken arc of Landolt.

Montano, continuing, said that an arbitrary standard was at times more applicable than a perfectly scientific one. He advised the metric nomenclature and proposed a scale devised by Tambarrel (Mexico). He took an arc of a circle and divided it into decimal parts called gono, decigono, centigono, etc., with a radius of a meter. The centinuligono is taken as the standard of visual acuity at 5 m.

Gonzalez, Leon, disliked letters as test type; he preferred Landolt's arc, black on white chart.

In discussion Ramos, Mexico, said there were two questions, the practical and the scientific; therefore a rigid solution was impossible. Again light conditions varied and the room of the body was not always the same. The new scale proposed was sensible and logical.

Uribe-Troncoso in some ways preferred Snellen's type, while Montono's scale is more scientific and can easily be adopted by ophthalmologists.

Chánez proposed a commission to try to unify test type used.

Pourquié, Torreon, read a paper on the *Examination of Vision in Employes of the Mexican International Railroad*. This embraced (1) visual acuity; (2) refraction; (3) color sense; (4) field of vision; (5) fundus. de Wecker's scale was used. Less than 1/4 V. was rejected and lenses were allowed only to old employes. Stilling's tables and Holmgren's worsteds were used for color sense. Peripheral color sense is important in railway employes. Color blindness re-

jected 2.29 per cent. Of 2,400 examined, 130 were rejected for visual defects; thirty-one for having only one eye. He urged that only those trained to the work (oculists) should conduct the examination.

Uribe-Troncoso stated that this was the first Mexican railroad to examine its employes thus. He preferred in color tests Thompson lanterns. The Mexican Ophthalmological Society should establish rules for these examinations and submit them to the government for its guidance.

Montano proposed the following principles: (1) Employes should have at least one-half normal acuity; (2) lenses should not be worn; (3) color sense should be normal; (4) field of vision normal; (5) an eye doctor should conduct the examination. A committee was appointed to formulate rules.

Velez and Silva, Mexico, read a joint paper on the *Conditions of Antisepsis and Sepsis in Eye Surgery in Mexico*, giving a short history of its development, and recommending the most modern methods for surgical conduct.

Lopez, Mexico, *demonstrated an apparatus for sterilizing solutions by means of acetate of ammonia at a temperature of 60° C.*

Cháncz, Mexico, showed new instruments. Enucleation scissors with one long arm to pass below conjunctiva and tendons, thus obviating the use of other instruments.

Uribe-Troncoso showed a *new model for Mires in the Javal ophthalmometer*; and an *artificial eye for skiascopy*. Also preparations of eyes mounted in glycerin jelly.

Ramos, Mexico, read a paper on the *Optical Treatment of Myopia*. In Mexico 4.40 per cent of children of mixed parentage had myopia, only 0.33 per cent of pure Indian race. He would correct all cases up to 9 D. (stationary) by lenses; beyond that he would consider operation. Children tolerate full correction; adults do not. He does not believe in a fixed rule, but thinks incomplete correction more practical.

Abarca, Guadalajara, on the same theme, thinks full correction of importance in children, to prevent advance, and up to 3 D. in any case; beyond that it is contraindicated.

Oliver, Philadelphia (U. S. A.), wished appointed a commission to unify tests under which color examinations are made. At present tints or shades have no uniformity.

Ramos, Mexico, supported Oliver's proposal.

Velez and Grane, Mexico, read a paper of *Subconjunctival Injections of Cyanide of Mercury*, 1.1000 beneath the enucleated eye, for sympathetic ophthalmia. They related cases which seemed to yield good results.

Silva stated that Abadie used injections beneath the conjuction of the sympathizing eye or into the nerve stump of the enucleated eye. Darier ascribed the good effect to mercury.

Velez thought syphilis was not present in his case, and that consequently this was not antisyphilitic treatment.

Alonso upheld the treatment, as did also Chánez.

Galindo tried injections to save the injured eye, but failed.

Velez did not think the treatment a substitute for enucleation.

Chánez thought a syphilitic base helped the treatment. Irritation was not sympathetic ophthalmia.

Galindo, Hidalgo, gave some *Statistics from Practice*. A majority (of 900 cases) were conjunctival. He praised calomel insufflations in leucomas. Sounds for nasal duct stricture he did not leave permanently.

Uribe-Trancoso recommended simple antiseptic washes for many duct infections; the permanent sound is useful in chronic cases, especially of a noninfected type. Protargol strong is valuable.

Velez liked the olive tipped sounds of de Weber.

Chánez preferred large sounds and antiseptic injections.

Chánez, Alonso, discussed the *Operative Treatment of Myopia*. Indications, methods, results, personal experiences. Under indications one eye (12 years and upward) visual acuity (below 1/10), myopia (of 14-15 D.), choroiditis. Contraindications, tolerance of lenses, no fundus changes, fluid vitreous, great visual weakness, loss of one eye. They prefer the needle with subsequent extraction of lens matter. For secondary cataract they prefer Wecker's scissors. The results are good. Alonso reported nineteen operations.

Galindo had tried tenotomy to check progressive myopia, with some success.

Lopez preferred in children to use discission with a large wound anteriorly.

Uribe-Trancoso said he was the first to practice depression of the lens in high myopia. He thought this operation applicable to children, followed by a firm pressure bandage. Under 16 D. he would not operate. It is not decided whether the operation improves eyes already affected with choroidal lesions.

The following theses were approved for the next annual meeting in 1904:

Etiology and Treatment of Diseases of the Lachrymal Passages.

Purulent Ophthalmia as a Cause of Blindness in Mexico.

Study of the Frontal Sinus with Respect to Surgical Treatment of Sinusitis.

Indications for the Use of Cyclopegics in Determining Errors of Refraction.

Diagnosis and Treatment of Syphilitic Affections of the Eye.

BRITISH MEDICAL ASSOCIATION.

OPHTHALMIC SECTION.

ANNUAL MEETING AT SWANSEA, JULY, 1903.

H. E. Juler, F. R. C. S., president, in the chair.

Notes on Operations for Conical Cornea.—The discussion on this subject was opened by Mr. Stanford Morton, who stated that he proposed to consider the treatment from an operative point only. Those operations chiefly used to produce flattening of the cone were:

1. Cauterization without perforation.
2. Cauterization with perforation.
3. Excision of the apex of the cone.

There are scarcely sufficient data at present to decide in favor of any one method. In order to assist at arriving at some definite conclusion he brought forward in detail the results he had obtained after thirty operations on thirteen patients of which he had notes.

In the large majority of cases the operation done was excision of the apex. The cornea was transfixed with a long, narrow Graefe knife and a small flap cut. It was then picked up with a small pair of forceps and an elliptical piece excised. This was designed to remove a piece 2 by 1 mm. In two cases cauterization by burning concentric zones, as advocated by Sir Anderson Critchett, was done without perforation, and another cautery was done with perforation.

These operations are certainly not devoid of risk and should only be undertaken when optical means fail.

Among the dangers attending excision are: Anterior synechia, iritis and posterior synechia; increased tension; hypopyon.

In cauterization with perforation these risks are the same, and,

though in cauterization without perforation these are minimized, yet in one case increased tension followed, requiring treatment.

It is difficult to specify the indications in favor of one or other operation. If the case were slight, the cautery would probably be indicated, the same also of complications such as posterior synechiae were present.

Excision of the apex and cautery with perforation appear to involve the same amount of risk. The scar, however, with the cautery is generally more extensive than the linear scar following excision. Flattening of the cornea being the object aimed at, is certainly best obtained with perforation. Whether, however, the advantages gained by the extra flattening are more than counterbalanced by the risks incurred, and whether the perforation should be effected by the knife or cautery, are points on which it will be easier to form an opinion when we have at our disposal more statistics giving full details of complete series of cases treated by the various methods.

Mr. Morton read a letter he had received from Sir Anderson Critchett, who said that his experience had led him to advocate his method by cauterizing concentric zones without perforation, because he believed it offered the best prospect of an average good result in the largest number. It was essential that the central spot made with the cautery should be as deep as possible short of perforation. He fully admitted the brilliant results sometimes obtained by good operators by the method of excision.

Mr. Tatnam Thompson described a method he had adopted of passing horsehair sutures through the cornea, in order to produce flattening. This, however, he had given up, and now only cauterizes short of perforation. Latterly he had done an iridectomy previous to cauterizing, as he thought it lessened the chances of after complications.

Mr. Richard Williams said that he had been so satisfied with the cautery without perforation that since 1886 he had used this method exclusively. His experience with excision had not been satisfactory. The former operation he thought far less free from risk. He thought, however, that a very large number of these cases did not require operation and could be improved sufficiently by glasses and general treatment.

Mr. Doyne said he was in favor of cauterizing without perforating. He never found difficulty in obtaining sufficient flattening. The scar, in course of time, nearly disappears, and he never experienced any complication.

The president said he had often excised the apex, but, on the whole, he preferred cauterizing and making a small perforation.

Mr. Morton, in reply, urged the necessity of operators publishing series of cases. The publishing of single successful cases was useless, as by such means we should never be able to form a definite conclusion as to the best method of operating.

Extraction of Cataract in Its Capsule.—By Major Smith, M. D., I. M. S.—Major Smith said that the removal of the lens in its capsule was practiced in the early days of extraction in Europe, but it fell into disuse, as it was considered unsafe, although all recognized the value of it if it could be done.

Many surgeons in India practiced it, from Maenamara in the early '70s. Major Smith's experience extended over 8 500 cases, and of these 2,000 were done by the usual method and 6,500 were extracted in their capsules. Of 1,023 cataracts extracted in their capsules there was an escape of vitreous in 6.6 per cent. In 4 per cent the capsule was left behind and 99.4 per cent gave first-class results.

The pupil reaction is the most delicate test as to whether the eye is otherwise sound.

The operation is performed by making an incision at the corneo-scleral junction and at once taking out the speculum. The upper lid is then raised by an assistant with a hook while with his thumb he depresses the lower lid; this controls the orbicularis, which, in nearly all cases, is the cause of vitreous being lost. By pressure on the cornea with another strabismus hook, and by counter pressure with a spoon at the wound, gradually, the lens in its capsule is protruded. If the pressure be not made gradually the capsule may burst and be left behind, though the experienced operator can even then generally remove it. It is of the greatest importance that plenty of time be allowed in extracting the lens, for if it be done quickly some complication is sure to occur.

The visual results of this operation are far ahead of any other method. Iritis followed where the capsule was left behind in about 5 per cent of cases, and four out of the 1,023 were failures. One due to suppuration, one due to hemorrhage, and in another the eye shrunk after an extensive loss of vitreous. Iritis was, he thought, not due to bruising, but to the retention of lens matter and capsule.

By operating in this manner we practically eliminate iritis and "after cataract," and the operation is in every way more desirable.

Mr. Bishop Harman related a case in which he had accidentally removed the lens in its capsule, and the eye did quite well.

Dr. Brailey thought it extremely difficult to know how great pressure the eye would stand.

The president had seen the operation done, but rarely without the loss of vitreous.

Major Smith, in reply, said that experience was the essential thing, and a beginner would be sure to find it difficult at first.

Subconjunctival Injection of Tuberculine from a Diagnostic and Therapeutic Point of View.—By Dr. Darier (Paris).—The patient was a girl, aged 13, who showed no sign of congenital or acquired syphilis, though she had a very tubercular aspect.

One eye had been practically destroyed by repeated attacks of inflammation and the other was beginning to become affected. She was suffering from a sclerosing form of keratitis. The other eye was buphthalmic and leucomatous. Hot applications with atropine and mercurial lanoline were used, without much effect at first, but subsequently injections of cyanide of mercury were well borne and she improved somewhat.

Numerous other drugs were tried, but at last subconjunctival injections of tuberculine T. R. were used. The local reaction was most violent. For eight days the eye was much swollen. When this subsided other injections were made, and in the end the vision of the right eye was 1/15 and that of the left 1/18.

Dr. Darier also read a second paper on the *Treatment of Serious Syphilitic Diseases of the Eye*. He thought that there was no method of applying mercury so efficiently as that of giving intravenous injections of the cyanide. This can with great advantage be injected subconjunctivally. Surgeons are apt to be nervous at the first appearance of general symptoms of the drug, but it is absolutely essential to push it if these more serious complications are to be successfully treated.

Mr. Sydney Stephenson strongly advocated the methods recommended by Dr. Darier.

The discussion of the *Eye Changes in Renal Retinitis* was opened by Mr. Nettleship. He said that, although much is already known about the eye changes in renal disease, information is still needed both from ophthalmologists and physicians upon several points, and the following heads were suggested as furnishing suitable matter for discussion:

1. Does albuminuric retinitis ever occur in primary acute nephritis?
2. Cases of retinitis from lardaceous disease of the kidney and from nephritis due to inflammation of the bladder, ureter, or pelvis of the kidney, should be recorded.

3. In the retinitis due to pregnancy it is important to know whether the kidneys were or were not sound before the first pregnancy. It seems that most cases occur between the ages of 30 and 40, after several pregnancies, and several attacks of pregnancy dropsy, and that the prognosis of life is better than in ordinary renal retinitis. These facts support the theory that the kidney disease induced by pregnancy is a peculiar and often recoverable affection. All these cases should be examined for signs of chronic nephritis, as the propriety of inducing premature labor may partly depend upon the diagnosis in this respect.

4. If all cases of renal retinitis (except those due to pregnancy) are counted together without reference to age, there are found to be nearly twice as many males as females, the proportion being about the same as that of chronic nephritis. But when the retinitis occurs early in life, the sex proportions seem, from the scanty material available, to be almost reversed.

5. Recognizing two chief factors in the production of renal retinitis—the state of the blood and the state of the retinal blood vessels—he asked for any cases in which a condition of visible disease of the retinal arteries was present without evidence of kidney disease, and whether such cases had been followed by unequivocal signs of chronic nephritis.

6. Do the characters of the retinitis in different cases justify any inference as to the kind of nephritis (chronic interstitial or chronic parenchymatous) from which the patient is suffering? The whole course of the cases should be carefully watched and two kinds of white opacities are to be distinguished: the soft-edged white, or grayish white, patches in the nerve fiber layer, and the brilliant, intensely white, sharply defined patches composed of confluent dots situated in the deeper layers and often arranged in the familiar radiating pattern around the yellow spot.

7. When retinitis occurs with glycosuria in which albumin is also present, to which of these conditions is it due? Probably many of them are really cases of albuminuric retinitis, though sometimes diabetes only is present.

8. Of the other points requiring elucidation are: The influence of (a) scarlet fever; (b) inherited syphilis in producing the chronic renal disease leading to retinitis; (c) the occurrence of renal retinitis in one eye only; (d) cases in which more than one attack of retinitis have been seen and watched through, with special reference to the changes caused by the first attack, and to the effect of retinal atrophy upon the character of the second attack; (e) when pigment spots are

left by renal retinitis, why are they so often found at the periphery of the fundus; (f) what is the cause of the night blindness occasionally met with in renal retinitis; (g) what causes the appearance of choroiditis in some cases, and, finally, what is the nature of the white, opaque thickening of the coats of arteries and veins in some cases and of the appearance resembling retinitis pigmentosa in others?

Dr. George Carpenter said that, with regard to juvenile retinitis, he had made routine examination of the fundus in cases of nephritis in children for many years. During that time he had come across three examples. Two of the cases occurred in chronic interstitial nephritis and both of them were verified post-mortem. There was a growing opinion that these cases in children were of syphilitic origin. The third case was one of parenchymatous nephritis in a girl of 8 years. There was intense neuroretinitis and the changes were partly oedematous and partly degenerative. There was no evidence of syphilis. He thought that this condition was sometimes also due to syphilis. He thought that retinitis was not uncommon in interstitial nephritis in children, but what was uncommon was interstitial nephritis itself.

Mr. Henry Power recorded the case of a clergyman, aged about 30, whose health suddenly failed and his vision became impaired, and on examination retinal hemorrhages were found, and radial spots at the macula. The urine was carefully examined and was found to be normal. Three weeks later the changes were more marked and the vision was worse. The urine was then found to contain much albumin and the patient died a few months later. He had seen hemorrhagic retinitis in a pregnant woman who subsequently recovered.

Mr. Hartridge thought that the cases should be divided into those which were of toxic origin and those in which the changes are entirely due to changes in the blood vessels. The cases that do well may be simply toxic. The character of the white patches are difficult to determine, but those that get well must be due either to exudation or else to loss of transparency. He related a case in a boy who had renal retinitis, and, as he had syphilitic choroiditis, the kidney disease was probably due to this.

Mr. Silcock asked Mr. Nettleship if he had seen retinal changes in surgical kidney; he himself had never done so, except in cases associated with cardio-vascular lesions. Even in cases of prolonged suppression of urine in calculus anuria he had failed to find retinal changes. He regarded the prognosis as very unfavorable, but he agreed with Mr. Power as to the retinitis of pregnancy.

Dr. Reeve (Toronto) mentioned two cases—one a man, appar-

ently in his prime, who died of Bright's disease within six weeks of the first failure of sight; the other case was a man of middle age in perfect health but with myopic fundus changes. Lateral renal changes were developed and were associated with Bright's disease.

Mr. Nettleship, in reply, said that the greatest care should be exercised when giving a prognosis.

Epithelial Plaques of the Conjunctiva.—Messrs. Lister and Hancock brought forward four cases of rare epithelial tumors of the conjunctiva.

Cases 1 and 2 were in young people under 25. The small growths were of a yellowish color and were situated near the limbus above the cornea. One had been removed, but had recurred at the same situation. The surface was dull and one was marked with furrows which corresponded microscopically with minute papillae. They differed from dermoids in containing neither glands nor hairs, and from xerosis patches by the absence of the frothy appearance; the patients were otherwise healthy and there was no night blindness.

Cases 3 and 4 were in people well over middle life. The growths were of a dead white color, like sodden epithelium. One of them had some small pink spots which corresponded to minute, thin-walled blood vessels; the other had no blood vessels.

Clinically they somewhat resembled epithelioma of the conjunctiva, but differed from it in that they had not the convoluted edge and in color they were too white.

Microscopically all the growths consisted of greatly thickened conjunctival epithelium. None of the cells passed into the connective tissue. The growths corresponded more nearly with callosities of the skin, rather than with warts or corns, and until further information was collected the authors were inclined to give them the more general title of "Epithelial Plaques of the Conjunctiva."

Dr. Karl Grossman described a case of aniridia, in which he observed the effect of eserine on the shape of the lens. He found that both the anterior and posterior surfaces of the lens became bulged and the equatorial diameter of the lens became less.

Mr. Harman thought it unwise to draw general conclusions from a single case that was evidently abnormal.

The Corneal Lesions in Acquired Syphilis.—Mr. Sydney Stephenson said that there were two ways in which acquired syphilis may affect the cornea: (1) As an interstitial, diffuse or parenchymatous keratitis, and (2) as a true keratitis punctata described by Mauthner. The latter must be carefully distinguished from ordinary keratitis pun-

tata. Mauthner's is a primary specific affection of the cornea, and the spots are lying at various depths in its substance. There may or may not be episcleral injection; the condition rapidly develops and equally rapidly disappears. The iris is not involved and Mauthner looks upon it as a gummatous infiltration of the cornea. He describes the case of a man, aged 29, who developed the condition four years after he had contracted syphilis. It disappeared six weeks after he had been under mercurial treatment.

Hutchinson at first stated that interstitial keratitis was never seen in acquired syphilis, but since then numerous cases have been described. Statistics showed that from 1.9 to 10 per cent of all cases of interstitial keratitis are due to acquired syphilis.

The chief characteristics of the disease are that it is usually unilateral, nonulcerative, and patchy, and that it usually quickly responds to treatment.

Mr. Stephenson described two cases he had seen in adults and it should be remembered that extra-genital syphilis is by no means unknown in children. He described a case in which a child aged 12 had the typical patchy keratitis and it was found that when a few months old she had had what was evidently a chancre of the lid, which was followed by the skin eruption, etc., of secondary syphilis.

In cases he had collected the average time in which it had showed itself after primary infection was 10.8 years, the extremes being twenty-three years and three weeks. In the latter case it occurred with the primary lesion but usually it is associated with tertiary manifestations.

Mr. Devereux Marshall mentioned a case that had come under his own observation in which the choroid was first affected, and subsequently keratitis developed.

The Use of Retinal Extract in Atrophic Retinae.—R. W. Doyne said when first led to try this it was with the idea of supplying in excess to the blood a specific food that was especially valuable to the retina. The results have been so marked that it points rather to the presence of some physiological principle such as is analogous to the thyroid gland. Fresh retinae are the most valuable, but a somewhat complicated preparation is made by Burroughs and Wellcome called "Optocine," and this is successful. One drawback to the treatment is the expense, as from six to ten fresh retinae a day are necessary. The supply is limited and they must be quite fresh.

In the great majority of cases treated the great improvement

noted is so definite that we must conclude it is due to the remedy. It doubtless acts by bringing out a potentiality that may remain in an atrophic retina. In five cases of retinitis pigmentosa in which it had been tried they all showed improvement, but the treatment must be persevered with or they relapse. In four cases of tobacco amblyopia they all showed the most marked improvement. In a case of optic atrophy where the patient had been unable to do more than count fingers for many months, she improved in eight weeks to such an extent that she could read words of J4 and she is able to walk about alone and do shopping.

Another case of atrophy due to tabes also showed marked improvement. Similar improvement was seen in a case of old choroiditis with a damaged and thin retina, the result of myopia. When he first paid attention to this subject he had no idea that anyone else had done the same, but he had since discovered that Louis Dor in 1897 and Lagrange in 1898 had used an extract of vitreous and ciliary body.

Mr. Sydney Stephenson mentioned three other cases in which this treatment had been adopted with excellent results and one was a case of tobacco amblyopia which improved directly, in spite of the continued use of tobacco.

Mr. Nettleship had seen some of Mr. Doyne's cases, but he was not quite convinced of the very marked improvement that was said to have taken place.

Dr. Edridge-Green said that some years ago he had tried to prepare an extract of visual purple, but this had quite failed.

Dr. Darier had previously tried extract of retina, choroid and ciliary body. He injected this subconjunctivally; the patients improved under it, but he got nearly as good results with injections of sodium chloride.

Discussion on the Treatment of Concomitant Convergent Strabismus.—Mr. G. Hartridge opened this discussion and commenced by emphasizing the importance of studying the various factors which helped to produce the condition, and the need of a careful examination in each case. The effect is binocular and is the result of excessive enervation of the internal recti muscles by the associated act of accommodation. The causes of it are (1) hypermetropia; (2) imperfect development of the fusion faculty; (3) defective visual acuity of one eye; (4) anatomical conditions of the eye.

One or several of these conditions may be present in any one case and a careful examination is essential.

The objects of treatment must be the correction of the deformity and the establishment of binocular vision.

The treatment may be divided into (1) optical, (2) orthoptic or educational, (3) operative.

He described the various educational methods that have been employed and showed some of the instruments used. Optical and orthoptic treatment must be honestly carried out for at least a year before an operation is thought of.

With regard to operations, these are all unscientific, as we can only touch the muscles, whereas the defect is in the innervation, and the defect often tends to diminish toward the age of puberty without apparent reason. Hence eyes that have been operated on early may diverge. Even if the eyes are put straight the operation itself tends frequently to produce deformity that are often, by patients and surgeons alike, ignored.

Tenotomy produces a shrunken caruncle and advancement, a considerable thickening over the advanced muscle.

He then discussed the advantages of the different operations that may be performed and invited discussion on three points:

- (1) Should the two eyes ever be operated on at the same time.
- (2) When should the operation be undertaken.
- (3) What operation gives the best result.

The following paper bearing on the same subject was then read:

Convergent Squint. Methods of Preserving or Restoring the Sight of the Deviating Eye and of Establishing Binocular Vision, by Claud Worth.—Mr. Worth said that having been engaged for several years in investigating the subject of squint, he had made detailed notes of more than 1,800 cases of convergent squint, an account of which had been published in his book "Squint."

In it he proved that congenital amblyopia is very rare and that at the first appearance of a squint the corrected vision of the deviating eye is almost always as good as its fellow. Yet after a time the deviating eye becomes almost blind as the result of long continued suppression of the vision of the eye, and this might all have been prevented.

Whether the sight can be restored depends much upon the length of time this suppression has lasted, and therefore the first thing to do is to preserve the sight of the squinting eye by forcing the child to use it, and to at once correct the refraction. No child is too young for this and many of his patients had worn

glasses before they were three months old and had been cured before they were able to walk.

It was important that the frames should be made with very short sides reaching only to just above the ears, and these should end in loops so that they can be tied on. The bridge should have a broad, flat piece of tortoise shell fitted so as to distribute the pressure on the nose. After the first hour or two the child will wear them as readily as clothes. In order to exercise the deviating eye for near things, atropine should be used to the fixing eye only, every morning. This eye, therefore, can not be used for near objects so the child then gets into the habit of looking at his toys with the deviating eye. If the child is young enough the sight gradually improves and he may then even squint with the atrophinized eye. The drops are then left off and thus the eye is saved from becoming amblyopic.

If central fixation has already been lost an attempt may be made to restore it by continuous occlusion of the fixing eye by a pad; if this succeeds, treatment with the amblyoscope should be practiced.

The most harmful practice is to use atropine for the two eyes, for this effectually prevents the deviating eye from making any attempt at exercising itself.

He had found certain evidence of a desire of binocular vision between five and six months, though probably a certain degree existed before this. Toward the end of the first year a considerable effort will be made in the interest of binocular vision, and binocular vision reaches its full development by the sixth year. After this age fusion training is merely waste of time.

He then described the "amblyoscope" and its method of use. In many cases the desire for fusion brings about a sudden cure of the squint, and no matter what deviation is present, if one can establish a desire for binocular vision, a permanent cure may with confidence be expected.

Mr. Tatham Thompson agreed that the early correction of optical errors was the correct thing to do, yet he had never enforced correcting glasses before two years of age. He relied much on the use of atropine to the fixing eye. He never operated on both eyes at the same time and he thought that tenotomy was justifiable in a certain number of cases. In high degrees advancement with tenotomy of the opposite muscle was necessary.

Mr. Maddox expressed our indebtedness to Mr. Worth for

insisting upon early training. He made some suggestions for simplifying the use of the amblyoscope.

Mr. Harman spoke of the comparatively late development of binocular vision in man.

Dr. Reeve (Toronto) said he should never operate on both eyes at the same time and thought that there was a tendency to try and get too much effect from division or advancement of one muscle. He described several operations.

Mr. Grainger was strongly in favor, when advancing a muscle, of shortening it without cutting away any part of it. He described the method he usually adopted.

Mr. Lister thought that operations that could be done under cocaine were most satisfactory, though by no means so if a general anesthetic were used.

Mr. Hartridge, in reply, said that anesthetics were necessary in children.

Mr. Worth said that in cases in which he had been able to train the fusion sense, he had no hesitation in resorting to operation at any age, because the trained fusion sense could be relied upon to do the fine adjustment; but in cases in which binocular vision was out of the question he never operated until he was able to do so under cocaine.

Mr. Tatham Thompson read a paper on the *Fixation of the Eyeball during Operations in Intractable Patients*. This consisted of passing sutures on both sides of the cornea in the conjunctiva. By making traction on these sutures, the eye could be rotated downward and this caused far less gaping of the wound than when a pair of fixation forceps were used.

Mr. Beaumont described some double forceps he had used with the same object.

Mr. H. C. Ensor described an *operation he had devised and performed for the relief of ptosis*. It consisted of removing a strip of skin below the eyebrow and then cauterizing the subjacent tissues. This caused a scar which, by contracting, raised the lid in a much more efficient manner than is usually obtained by those operations which depend for their action on attaching the lid to the occipitofrontalis muscle.

Preliminary Note on the Pathology and Diagnosis of Spring Catarrh, by Major Herbert, I. M. S.—In this report he dealt only with spring catarrh as met with in India among the natives. He chiefly wished to draw attention to the remarkable infiltration

of the affected tissues, both ocular and palpebral, with eosinophile leucocytes. By appropriate fixing and staining these special cells can be seen to form a large proportion of the cells which infiltrate the tissues. This infiltration is rare in other parts of the body, occurring only in some cases of pemphigus of the skin.

The presence of eosinophiles in the exudation may be useful as a ready means of diagnosis. There is ordinarily very little exudation in these cases, but it is quickly induced by slight irritation, such as by everting the upper lid for examination. If this be done a thin layer of the exudation can be obtained, and if this be examined eosinophiles are found in great numbers.

In ordinary conjunctival exudation there are hardly any of them present. This fact should be taken into consideration when dealing with the pathology of this somewhat curious affection.

Finally in some of the sections shown stained with polychrome methylene blue, there are intra-cellular bodies which may possibly be parasites. Some of them at least are very different from the hyaline bodies that may be seen in trachoma and other chronic inflammations.

Further Note on the Superficial Punctate Keratitis of Bombay, by Major Herbert, I. M. S.—This affection that he had previously described is most prevalent in the warm weather at the close of the rainy seasons. In October, 1901, there was a severe epidemic and these cases formed one-fourth of the total out-patients attending the hospital. At first there is thickening and injection of the conjunctiva and a trace of ciliary injection. Then the dots on the cornea which stain with fluoresceine appear. An encapsuled bacillus is found but the author had not been able to find out much about it and the part it took in the disease.

Modified Mules' Glass Ball for Use After Removal of the Eye, by Adolph Bronner.—Dr. Bronner said that the operation he was in the habit of doing was that of inserting a glass globe into the capsule of Tenon. This, however, not uncommonly came out. He had now devised a glass ball with a hole through the middle. By a somewhat elaborate method of stitches this is held in and it is less liable to come out than formerly with the simple globe.

Knee-Jerk Phenomenon in Patients Suffering from Interstitial Keratitis, by N. Bishop Harman.—It having been stated that in cases of interstitial keratitis the knee-jerks are absent, Mr. Harman examined a large number of children suffering from the disease as well as a large number of healthy individuals who showed

no signs of congenital syphilis. The result was that there was practically no difference in the reflex in the two classes of cases.

Messrs. Doyne and Beaumont had also investigated the subject and they both agreed with Mr. Harman.

An Improved Operation for Congenital Ptosis, by N. Bishop Harman.—The operation described by Mr. Harman was a modification of Mules' operation and instead of using wire he used very fine gold chain. This had many advantages over the wire, chiefly because the tissues would take a greater hold upon it and it would be possible to evert the lid if necessary without running the risk of breaking the wire through bending it. He also described his method of inserting it.

SAN FRANCISCO SOCIETY EYE, EAR, NOSE AND THROAT SURGEONS.

The monthly meeting of the San Francisco Society of Eye, Ear, Nose and Throat Surgeons was held on April 16, 1903. The president, Dr. Louis C. Deane, was in the chair. Dr. Merritt showed a case of *subacetate of lead deposited in the cornea of both eyes*. About five years ago the patient was given a solution of subacetate of lead to drop in his eyes, as they were sore. The result of the treatment was a permanent deposit in the cornea of both eyes which has remained ever since. The epithelium lies over it, leaving the surface smooth.

Dr. Martin: If it is a deposit of lead there are means of getting it out, but if it is an old infiltration, it can not be removed.

Dr. Franklin presented *some new instruments for inspection*. 1, A binocular electric head mirror (Clares) which can be readily focused; 2, Hajeks chisels for the septum; 3, Schulmeister's electric saw handles and saws; 4, A sliding scissors for removal of the turbinates.

The President: The subject for this evening's discussion is the *Evisceration of the Globe*. The subject can be divided into four divisions: First, the indications for the operation; second, the operative technique—and in this there is always something new, as for instance, whether the eye is simply left with a clot of blood in its interior or the advantages of inserting a foreign substance as a gold, silver, silver wire or glass globe, sponge or paraffin. The method of keeping the scleral wound gaping, etc.; third, the after

treatment, and much has been said as to the severe reaction following evisceration: fourth, the final results. Is the foreign substance retained? Is the eye painful? The chances of sympathetic ophthalmia, the cosmetic effects, etc.

Dr. Payne: As regards the indication for the Mules' operation, he speaks from experience of ten or twelve cases in which he has been very much pleased with the result. Of course it is simply the amputation of the anterior segment of the eye at the limbus, evisceration of the sclera and the insertion of the glass ball. It is indicated wherever there is no infection or malignant disease within the globe and may be used in recent penetration injuries where enucleation is done to prevent sympathetic trouble. In old cases, however, he will not resort to it, but up to this time he has used no other material than the vitrified glass ball for insertion into the sclera. The selection of the size of the ball is important. It should fit into the scleral cavity without any tension and still fill the cavity. Slitting the sclera a little at the interior and exterior can thus will allow one to coaptate the edges of the wound the better. As a rule there is a great reaction after the operation. The lids swell, conjunctiva very œdematous and there is considerable pain for several days. Ice applied does not seem to prevent this. He used it in his first two cases, and, although they came out favorably, of course, it was after a great deal of trouble and pain. To prevent this he now makes a wall of cotton over the orbit, filling it in over the lids so as to make a snug compress over the whole orbital opening and then put on a snug flannel bandage. The more evenly this pressure is adjusted the less the reaction, pain and swelling. Occasionally the patient requires a hypo of one-eighth or one-quarter of morphine the first few hours after the operation, but further than this he has had no trouble and the results have been excellent.

Dr. Deane: Dr. Payne's remarks have certainly been interesting and instructive. Would like to ask Dr. Payne if he has had any experience with the injection of paraffin. Could you bring some of your cases to some of our meetings?

Dr. Payne: In answer to the question as to the use of paraffin, he has had no experience with it, but can understand how it might be very satisfactory to fill in the orbital cavity or the space behind the conjunctiva in an ordinary enucleation. The glass ball has been so satisfactory that he hesitates to use any other material; however, he may try the paraffin to fill up the sclera in the near future.

ABSTRACT OF RECENT OPHTHALMIC LITERATURE.

BY E. A. SHUMWAY, M. D.,
PHILADELPHIA.

Paralysis of Accommodation and of the Soft Palate Following Mumps.—Mandonnet (*Ann. d'Oculistique*, February, 1903) reports a case of paralysis of accommodation in both eyes and of the soft palate in a child nine years old, following an attack of mumps, which was accompanied by high fever. The conditions were noticed during the period of convalescence. Careful questioning failed to show any history of diphtheria. One month later (two months after the child's illness) both paralyses had disappeared. Mandonnet was only able to find one other case of paralysis of accommodation after mumps.

The Symptoms Produced by Diseases of the Pons and Medulla, with Special Reference to the Ocular Symptoms.—R. Hirsch (*Zeitschrift f. Augenheilk.*, April, 1903) supplements previous articles by Prof. Bach on the affections of the corpora quadrigemina and cerebellum by a tabulation of the symptoms found in affections of the pons and medulla. He collected eighty cases of pure, mostly unilateral diseases of the pons, and his conclusions are as follows, the symptoms being arranged under two heads—first, general, second, ocular:

1. As direct focal symptoms we have *alternating hemiplegia, affections of the trigeminus, and disturbances of hearing.*

Alternating hemiplegia was present in 75 per cent of all cases; that is, in nearly all the cases in which the pontine lesion had produced any symptoms during life. It appeared in various forms, the most frequent being the type described by Oppenheim; in a small number of cases (10 per cent) the well known Gubler type was observed.

The *trigeminus* was involved in thirty-five per cent of the cases; in a very few an alternating hemiplegia was present between the trigeminus and the contralateral half of the body; the loss of sensation was in many cases preceded by hyperaesthesia.

In nine cases anaesthesia of the cornea was present, which was later complicated with neuromparalytic keratitis.

Disturbances of hearing (noises and deafness) were observed in 23 per cent. Whether in these cases the lesion in the pons did not extend beyond the accepted boundary line between the pons and the medulla, and involved the *striae acusticae*, was not stated; as,

however, important acoustic centers are found in the pons, and especially the supranuclear fibers, these disturbances of hearing can certainly be regarded as pathognomonic for diseases of the pons.

Dizziness and staggering gait can only be regarded as indirect focal symptoms, caused either by paralysis of the ocular muscles or by pressure on the cerebellum.

2. *Ocular symptoms:* Choked disc was found in one-third of the cases observed. As the pressure symptoms usually appear late and rarely reach a high degree, the optic neuritis is found only in the later stages. These cases were all tumors of the pons; in fifteen cases of hemorrhage into the pons, the eye ground was always normal.

Ocular paralyses. In about three-fourths of the cases, in other words, in nearly all cases which showed symptoms, the *abducens* was involved, as would be expected from the situation of its center in the pons; it is due partly to direct lesions, and partly to the results of pressure. Usually (in 90 per cent) the paralysis was unilateral, when the lesion in the pons was unilateral. In 10 per cent it was bilateral. The paralysis was usually complete. In a few cases there was irritation of the *abducens*, instead of paralysis, so that the eye was directed to the side affected.

Isolated paralysis of the internal rectus was not observed, but in 71 per cent of the cases of *abducens* paralysis there was also a *functional disturbance of the internus*, which was not so complete as that of the *externus* (paresis, instead of paralysis). In 12 per cent the *internus* was normal in monocular movements, but would not act in binocular movements. In four cases convergence movements could be executed.

Deviations of the eyes. With the paralysis of the external rectus of one eye and of the internal rectus of the other, there may be an associated irritation of the antagonists, and, as a result, a deviation of both eyes toward the sound side. Deviations of both eyes were found in nearly one-third of the cases. These must be distinguished from the conjugate deviations observed in diseases of the cerebellum, which are usually only temporary, while those in pontine diseases are permanent. *Ptosis* was seen three times, always on the same side as the *abducens* paralysis. *Nystagmus*, curiously, was noted only three times; how far inexact observations may have been present can not be decided. *Lagophthalmus* was seen once, and total ophthalmoplegia once. In nine cases *keratitis paralytica* occurred, as the result of involvement of the trigeminus.

B. *Diseases of the Medulla*.—Diagnosis of localized, slowly developing affections of the medulla is very difficult. Bernhardt, in fact, says that "It is clear that it is more than questionable whether we will ever be in a position to recognize with certainty slowly developing disturbances, especially tumors, in the medulla oblongata." Hemorrhages usually cause immediate death. The general symptoms caused by tumors and abscesses are manifold, and include *first*, disturbances of the cranial nerves from the eighth to the twelfth, whose nuclei are present in the medulla, *viz.*, deafness, paralysis and atrophy of the soft palate, and of the pharynx, with dysphagia, paralysis of the vocal cords, disturbances of the heart and respiration, and finally paralysis and atrophy of the tongue with dysarthria; *secondly*, they include paralysis and disturbances of sensation of the extremities by involvement of the nerve tracts which pass through the medulla. As Oppenheim says, an exact symptom complex for tumor formation in the medulla can not be stated.

The *ocular symptoms* are likewise uncertain, and not pathognomonic. In thirty-five cases of almost pure disease of the medulla collected by Hirsch, he found *choked disc* in about 30 per cent, about the same as in pontine lesions. *Paralysis* of the *abducens* was observed in 35 per cent of the cases; this, of course, is not a focal symptom of the medulla oblongata, but is to be ascribed to direct or indirect involvement of the abducens nucleus in the pons. *Widely dilated pupil* on both sides was described in 25 per cent of the cases. *Ptosis* and *exophthalmus* were each seen in one case. *Convergent strabismus* (paralytic?) twice.

As to the pupillary inactivity in the cases of mydriasis, the question arises whether it should not be ascribed to the optic neuritis; but examination of the statistics shows that in 15 per cent of the cases with mydriasis, the eye grounds were normal. For the explanation he is inclined to believe in a connection between the pupil reflex and the medulla. Bach and Meyer assume a reflex inhibitory center in the medulla, which is connected indirectly with the optic nerve through a descending path in the fillet, and an ascending path in the posterior longitudinal fibers. For the cases of mydriasis we could assume an irritation of this center, and in the other cases the center must either be intact or entirely destroyed.

Retraction Movements of the Eye, by Irritation of the Medulla Oblongata.—Hassan Zia (*Zeitschrift f. Augenheilk.*, March, 1903) in experiments on cats has obtained distinct retraction movements of from five to eight mm., by irritation of the corresponding

side of the floor of the fourth ventricle, not far from the middle line, at its lower third. The fourth ventricle was uncovered by trephining beneath the occipital protuberances, and removing the posterior vermiform process of the cerebellum by means of a curette. After several repetitions, spontaneous retraction movements occurred, or could be produced by touching the eyeball lightly. He interprets this movement by the assumption that there are other reflexes controlled by centers in the medulla besides the light reflex of the pupil, which has been demonstrated by Bach and Meyer (at the Heidelberg Congress, 1902). He believes that reflex winking is probably controlled here. Of course as man has no retractor muscle of the eyeball, the result obtained in the cat can not be directly applied to man.

True Papillae in the Normal Conjunctiva.—J. Nakagawa (*Archiv. f. Augenheilk.*, March, 1903) has made a study of the papillae in the conjunctiva surrounding the cornea. These have already been mentioned by Villard and Greeff and differ from the hypertrophies of the adenoid tissue of the conjunctiva which are present in many inflammatory diseases of that membrane, and which have been falsely termed papillae. The true papillae are present to the number of from four to thirteen in man, commencing exactly at the outer border of the limbus, and stretching outward, downward and inward about 2 mm. into the conjunctiva bulbi less far upward. They are true papillae, resembling those of the skin, which have, as their characteristics, wave-like elevations of the sub-epithelial tissue, which are compensated for by an unequal thickness of the epithelium over them. He found the same papillae in the eyes of horses, cattle, sheep and swine, but in the animals they were not so high as in man. An interesting point is that the epithelial processes between papillae increase in depth in old people, and their inner extremities may be branched. This may explain why this position is a point of predilection for the development of carcinoma. These processes commence to grow rapidly in beginning carcinoma, forcing their way inward, destroying the tissue, and sending outshoots toward the surface.

Molluscum Contagiosum of the Ocular Conjunctiva.—Th. Balaban (*Archiv. f. Augenheilk.*, April, 1903) describes a growth situated on the ocular conjunctiva, the size of a hazel nut, which extended from the outer commissure nearly to the cornea. The conjunctiva was firmly attached, but the growth itself was movable in the underlying tissue. It was yellowish red in color, had a lobulated

appearance, and was quite elastic. It was readily removed and healing was prompt. The microscopical examination showed that it was a molluscum contagiosum of the conjunctiva, a condition which has not previously been described. Catarrh of the conjunctiva, caused by the presence of molluscum contagiosum on the skin of the eyelids has been described by Steffan, Mütze, Elschmig and Schäfer. Two of Schäfer's cases had corneal involvement. All of these cases proved intractable until the growths were removed. Balaban's case is the first in which the conjunctiva was the site of the tumor, the usual position being the face, the neck, hands, forearms, genitalia and eyelids.

Experiments upon the Endogenous Infection of the Eye.—

Selenkowsky and Woizechowsky (*Archiv. f. Augenheilk.*, April, 1903) have made a series of experiments upon the infection of the eye by means of bacterial infection of the general vascular system, following up similar experiments of Moll, Panas and Selenkowsky. They were directed especially to the determination of the following questions:

1. Whether the penetration of the organisms circulating in the blood into the posterior part of the eye is possible under any circumstances?

2. If this is the case, do they come from the anterior part of the eye, or directly from the blood?

3. In what way do the microbes enter both parts of the eye?

4. Does the apparent absence of any clinical changes, even when the bacteria are found in the anterior chamber, correspond to the absence of all microscopical lesions; and if the latter do occur, what is their nature?

5. Is it possible, by modification of any of the conditions in the experiments, to produce clinical changes in the eye?

6. How does the irritation act not only upon the anterior, but upon the posterior part of the eye?

7. How does the greater or smaller amount of the culture introduced into the blood act, and also the strength or weakness of its virulence?

Cultures of various degrees of virulence and amount were introduced into the general circulation, and the eyes were then irritated. For the anterior segment the irritation was produced either by cauterization of the limbus corneæ, by the introduction of a piece of steel into the anterior chamber, without injuring the iris, or by producing an artificial prolapse of the iris. For the pos-

terior part of the eye the irritation was produced by the introduction of a foreign body into the vitreous. The following conclusions were reached corresponding to the seven questions above:

1. It is possible, experimentally, to cause the penetration of bacteria circulating in the blood into the posterior part of the eye, or rather into the vitreous.

2. The organisms do not enter the vitreous from the anterior segment of the eye, but through the corresponding vessels of the posterior part.

3. The organisms reach the *aqueous humor* exclusively through the *ciliary vessels*, and the *vitreous humor* through the vessels of the *retina and choroid*. The iris, anteriorly, and the lymph spaces of the optic nerve posteriorly, have apparently no role in this respect, although it is often possible for the organisms to reach the eye simultaneously through the lymph spaces of the nerve *per continuitatem*.

4. In spite of the absence of all inflammatory appearances, in the majority of the cases in which the bacteria enter the eye, there is always a microscopically demonstrable phenomenon, namely phagocytosis, which is for the purpose of weakening or destroying the bacteria.

5. Under certain favorable conditions violent inflammatory phenomena can be experimentally produced in the eye by endogenous infection.

6. With a weak, or moderately severe, general infection bacteria enter the vitreous only when the eye has been irritated a short time previously; in this respect irritation of both parts of the eye is the most favorable condition; then follow irritation of the posterior part, and finally that of the anterior part.

7. In severe general infection the organisms may enter the vitreous of the normal, non-irritated eye. The question as to the way in which irritation of the eyeball influences the entrance of organisms into it has never been shown experimentally, but reasoning from experiments made by Hofbauer and Czylarz and others upon infections after nerve injuries elsewhere, it is probable that a chief factor is the hyperemia produced. In addition to this the direct irritation of the sensory nerves probably produces trophic disturbances of the vessel walls and a weakening of the resisting power of their endothelial cells. The posterior part of the eye offers a better field for the development of organisms but a less favorable

chance for their penetration, and the organisms may enter despite the absence of embolic or thrombotic processes in the vessels. Why the organisms so rarely produce inflammatory symptoms within the eye is probably due to the few number which enter (in the majority of cases), to their rapid removal through the lymphatic current from the aqueous, and to the vigorous phagocytosis in both parts of the eyes.

Therefore *all general and local processes in the organism which lead to a weakening of the tissue and of the cells, e. g., previous illness; all local diseases which interfere with the lymph circulation of the eye, all external and internal irritations of the eye, as traumatism, operations, over use of the accommodation in anomalies of refraction; all physiological and pathological conditions by which hyperaemia of the eye is produced, e. g., pregnancy, diseases of the heart, liver, kidneys, etc.; everything that weakens or destroys the normal functions of the ocular nerves, especially of the trigeminus, and cervical sympathetic; all these conditions may lead to endogenous infection of the eye in the presence of a general or local infection of the body.*

The important practical conclusion to be drawn from these experiments is the necessity of observing the two following prophylactic rules:

1. *A thorough investigation of the general condition should be made before any operation on the eye; and*
2. *The eyes should have complete rest in every infectious disease, even of the mildest character.*

A Stereoscopic Ocular for my "Reflex-free" Ophthalmoscope.

—W. Thorner (*Archiv f. Augenheilk.*, April, 1903) has constructed an eye piece which can be attached to the tube of his large ophthalmoscope, by means of which a stereoscopic view of the fundus is obtained. This arrangement is much cheaper than the "stereoscopic ophthalmoscope" which he previously described (in *Schweigger's Festschrift*), and is much more easily focussed.

Value of Iridectomy as Shown by 1,200 Collected Cases.—

O. Hallauer (*Archiv f. Augenheilk.*, April and June, 1903) has collected 1,200 cases of iridectomy from the university clinic in Basel, and has tabulated the results so far as vision was concerned as follows:

CATEGORY	Leucoma simplex	Leucoma adhaerens	Seculsion of pupil	Kerato-iritis	Zonular cataract	Secondary central cataract	Chronic iritis	Irido-cyclitis	Irido-choroiditis	Acute glaucoma	Chronic glaucoma	Simple glaucoma	Partial staphyloma of cornea	Seculsion and occlusion of pupil with secondary glaucoma
Central vision	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Improvement	85	81	65	72	87	89	68	62.5	64	69.5	35	18	82	50
Preservation... ..	12	17	27	28	13	11	32	29.	28	12	26	28	14	29
Decrease	3	2	8	..	..	..	..	8.5	8	18	39	54	4	21

Asthenopia Dependent on Neurasthenia and Hysteria.—Dr. H. Gradle, Chicago (*Archives of Ophthalmology*, July, 1903) analyzes the clinical conditions which determine the severity and extent of asthenopic symptoms. Low and even medium grades of hyperopia and astigmatism may not cause any annoyance in healthy, vigorous persons, until the power of accommodation fails relatively on account of the normal decline of the range of accommodation with advance in years. Such persons complain merely of premature presbyopia, viz., blurring in close work and a tired feeling far in advance of the normal presbyopic time of life. This condition may be called normal asthenopia.

But most of the patients seen by the oculist suffer much more than this in consequence of optic defects. The feeling of fatigue turns into pain and may extend beyond the eyes, and headaches, dizziness and other symptoms are not uncommon. The exaggeration of asthenopia dependent on optic defects can generally be traced clinically to a variety of conditions lowering the vigor of the nervous system.

The most frequent of these is anæmia. Equally important is a neurotic tendency, either inherited or acquired in consequence of some enfeebling disease (influenza or measles, for instance), unhealthy surroundings, close confinement and want of outdoor exercise or other debilitating influences. Whenever the anæmia or other debilitated condition can be cured, the exaggerated form of asthenopia changes to the moderate asthenopic complaints corresponding to the existing optic error. Gradle insists, therefore, that the patient's general health and his mode of living should receive attention, besides prescribing glasses really indicated. He deplors

the tendency to order weak glasses in every instance of deviation from the ametropic type of eye. He points out, too, that even in perfect emmetropia intense asthenopic distress may be observed as the consequence of pronounced anæmia or intestinal derangement (auto-intoxication).

The clinical picture of asthenopia is often complicated by psychic influence, especially in emotional or hysterical people. Anxiety regarding the eyes may intensify the complaints produced by optic errors or prolong them after proper correction by glasses. In some patients neuralgic pains and the discomfort commonly caused by optic defects are wholly maintained by psychic influence after having been started by some irrelevant traumatism or some transient inflammation. The hysterical nature of these forms of asthenopia can be suspected after local and systemic causes have been excluded by detailed examination. The only absolute proof, however, is the possibility to remove the distress by mental influences or suggestive therapeutics. While many satisfactory results can be obtained in this manner, there are some hysterical subjects whose complaints prove very rebellious.

NOTES AND NEWS.

ITEMS FOR THIS DEPARTMENT SHOULD BE SENT TO
DR. BROWN PUSEY, 31 WASHINGTON ST., CHICAGO.

Dr. H. Moulton, Ft. Smith, Ark., is in Europe for the summer.

Dr. E. C. Ellett, of Memphis, Tenn., is spending several months in England and France.

The Heidelberg Ophthalmological Society will convene the 14th, 15th and 16th of September.

Dr. Louis A. Prefontaine has been appointed oculist to the Springfield (Mass.) Hospital.

Dr. G. E. de Schweinitz has moved his residence and offices to 1705 Walnut street, Philadelphia.

The third edition of Dr. Charles H. May's Manual of the Diseases of the Eye has just appeared.

A Spanish-American Ophthalmological Society to meet annually at Madrid has been formed under the guidance of Dr. Menacho.

Dr. Beverly Randolph Kennon, of Norfolk, Va., and Dr. John P. Davidson, of Richmond, Va., are in Europe for the summer.

Dr. E. A. Spilsbury has been appointed surgeon to the eye, ear, nose and throat department of St. Joseph's Hospital, Yonkers, N. Y.

On the 13th of last May the first annual meeting of the Vienna Ophthalmological Society took place, with Prof. Schnabel as president.

Drs. E. C. Ellett and P. M. Farrington have established a private hospital in Memphis, Tenn., for the treatment of diseases of the eye, ear, nose and throat.

The French Society of Ophthalmology has chosen, "Visual Acu-

ity from the Standpoint of Accident Insurance," as the subject for its meeting of 1904.

Dr. Wm. E. Shackelton has been appointed ophthalmologist to the Mount Sinai Hospital of Cleveland. This is a new hospital, which has been established by Jewish citizens of that city.

The department of education of the state of Texas has adopted the resolutions of the American Medical Association concerning the eye and ear examination of school children, and will proceed to put it in operation in that state.

The New York board of health will shortly open at the corner of One Hundred and Eighteenth street and Pleasant avenue a new hospital for the treatment of trachoma. It is proposed to establish similar hospitals in the Bronx and Brooklyn.

Incident to our horrible method of celebrating the nation's birthday, according to reports collected by the *Journal of the American Medical Association*, on the last Fourth of July ten persons were made totally blind and ninety-five eyes were lost.

The Montana state board of health has adopted the resolutions of the American Medical Association concerning the eyes and ears of school children and will immediately commence operation of the same after the plan inaugurated by the Illinois state board of health.

The San Francisco board of education has adopted the resolutions concerning the testing of school children's eyes and ears adopted by the American Medical Association at its last meeting, and will this fall commence the examination of school children's eyes and ears throughout the city.

Mr. Henry Phipps, donor of \$1,000,000 for the cure of tuberculosis in Philadelphia, and of magnificent conservatories to the Pittsburg and Allegheny parks, and the founder of a free manual training school and playground in Allegheny, signalized a public exhibition of the pupils' work by the announcement that all children in the school would have their eyes examined free of charge, and

that those needing special glasses would be provided with them.—*American Medicine*, July 11, 1903.

To Test Eyes.—Henry Phipps, Jr., has sent \$350 to the First Ward Manual Training School, Allegheny, with a suggestion that the money used in the examination of the eyes of the school children. He will add to his contribution a sufficient amount to secure treatment and the procuring of glasses for those who are found to need them.—*Jour. A. M. A.*

The Vienna letter to the *Medical News* of August 29 says: "There are between two and three thousand cases of trachoma in the Austro-Hungarian army. This vast number of cases induced the energetic interference of the minister of war. He requested the army medical staff to plan a method to obstruct the propagation of this terrible disease. Here is one of the methods: To concentrate the afflicted persons to one place and to watch that no new trachomatous patient be allowed to enter military service."

In the examination of candidates by the Indiana State Board of Medical Registration and Examination to practice medicine, held at Indianapolis July 14 to 16, 1903, the following questions on ophthalmology were asked:

1. How would you test acuteness of vision?
2. Give test for color blindness.
3. Define conjunctivitis neonatorum; give causes, symptoms and treatment.
4. Define iridectomy and state under what conditions you consider the operation necessary.
5. When should enucleation be performed? Describe operation.

A very appreciative notice of Dr. Gould's great work, *Biographic Clinics*, appears in the *British Medical Journal* of June 20. It occupies a page and a half, and closes with the following paragraph:

"Enough has, we think, been said to give an idea of the contents of this fascinating book. For fascinating it is, as much, perhaps, from the personality of the author, revealed in every sentence, as from the nature of its contents. But it must be read and studied in order to gain an adequate notion of the industry in the collection of 'documents,' the ingenuity in explanation, the subtlety and frequent cogency in argument, and the vigor of style which it displays. Whether the theory propounded therein be sound or not, the work is a

valuable contribution to medical literature. In these days of jejune treatises and compilations, which are as ashes in the mouth, a book like Dr. Gould's *Biographic Clinics*, which has the freshness, the brilliancy, and the rushing force of a mountain stream, is as welcome as summer—when it does come in this dreary climate."

The leading editorial of the May 9 number of the London *Lancet* was on the subject of "Opticians" and "Spectacle Prescribing." As a result of this editorial, the editor received two letters giving the optician's side of the subject. These letters are published in the *Lancet* of June 6. In the number of June 20, the editors close the discussion with the following note in answer to further letters from the opticians:

"The simple facts are that the eyes are organs in which mere faults of shape and alterations of function incidental to advancing life are frequently complicated by physiological defects and pathological changes of a serious character. The knowledge of the medical practitioner covers the whole range of the resulting phenomena; the knowledge of the optician at the very best covers only a small and comparatively unimportant portion of them. In these circumstances, the claim of the 'optician' to be a skilled adviser in matters pertaining to vision appears to us not only to be one which it is impossible to sustain, but one which cannot fail in a certain and perhaps considerable portion of cases to entail disaster upon those who are misled by it. The action of the prescribing optician is precisely on all fours with that of the prescribing druggist. If it be the pleasure of the public to be deceived, the public must suffer, and in the meanwhile we have discharged our duty by giving expression to the facts of the case."

Mind Blindness for Objects.—According to the *Edinburg Medical Journal* for March, Lepine (*Recueil d'Ophthalmologie*, Paris, 1902, tome vii) records a case which is interesting as being in a sense the converse of the word blindness. It was that of a man who had partial and transitory attacks of paralysis for some months. When Lepine saw him, there was no aphasia or amnesia, speech was perfect, and vision was also apparently quite good. It was not, however, quite normal, for, though he had no hemianopsia, he had some difficulty in "fixing" any object, and he could not read fluently at all. Objects which, in the course of his business (as a traveler for watches, etc.), had been very familiar to him, he recognized promptly and named correctly, but any other article, even of quite a common thing, he failed

to name or even to recognize; he could not imagine, for example, to what use a measuring tape could be put when it was shown to him. He could write to dictation and copy perfectly, but if asked to draw a common object, such as a tree, he merely wrote down the word "tree," without being able to make the slightest effort to sketch it; he seemed to have completely lost the visual memory of it. The picture of an object he appeared to recognize more readily than the actual object. When he looked at an article he recognized its outline, form, relief, color, etc., but remained entirely ignorant of its nature or use.

Sir Ernest Cassel's Gift for the Relief of Ophthalmia in Egypt.—Sir Ernest Cassel having given a large sum of money to the Egyptian Government for the relief of ophthalmia in Egypt, it has been decided to send traveling dispensaries into the country for the relief of those sufferers who are unable to attend the already existing hospitals. There will be at first one of these dispensaries or ambulance hospitals which will have a couple of tents with beds for operation cases and for the more serious treatment of cases. This will travel about from place to place under the direction of an ophthalmic surgeon, who will have under him an Egyptian assistant surgeon. If the experiment is successful, the number of dispensaries will be increased. Mr. A. F. MacCallan has been appointed by the Egyptian government to organize and to direct the enterprise, with the title of "inspector of traveling ophthalmic dispensaries in Egypt." Mr. MacCallan was formerly senior house surgeon at the Royal London Ophthalmic Hospital (Moorfields), and at the present time holds the post of chief clinical assistant at the hospital. He will leave for Egypt immediately, and has clearly the necessary qualifications to start the quaint experiment upon a sound basis. But what will be regarded as a sufficient measure of success to justify the making of further experiments, and who is to judge what is a success and what is a failure?—*The Lancet*, June 20, 1903.

The 10th International Congress of Ophthalmology will be held in Lucerne, Switzerland, September, 1904. Members of the Congress who propose to contribute a paper should send their manuscript before the 1st of May, 1904, to Professor Mellinger Bale. The paper must be written in one of the four official languages of the Congress, English, French, German, Italian, and the length must not exceed five pages of the size of the official report of the previous congresses.

The following subject will be discussed: *To Settle the Question of Indemnity as regards the Value of an Eye Lost or Injured*. Professor Axenfeld, Freiburg, Dr. Sulzer, Paris, and Dr. Würdemann, Milwaukee, will present a report on this subject. The Congress will last three days. The morning sessions will be devoted to discussion, and those in the afternoon to practical demonstrations. The president of the Swiss Confederation, M. Deucher, M. D., has accepted the position as honorary president of the Congress. The organizing committee consists of Professor Dufour, president; Professor Pflüger, vice-president; Professor Mellinger, secretary and treasurer; and Professor Snellen, president of last Congress. Any further information may be obtained by addressing Dr. Geo. E. de Schweinitz, 705 Walnut street, Philadelphia, or Dr. Coote, Quebec, Canada, who have been appointed correspondents for the United States and Canada respectively.

Martial on Alcohol and Eye Disease.—Dr. Deneffe, in *Janus* for December, calls attention to the retrobulbar neuritis often caused by the abuse of alcohol, and points out that even in Martial's time (A. D., 54 to 98) the dangerous effects of alcohol on the eyesight were known. In support of this assertion he refers to Martial's epigrams, vi, 78. As Martial is not quite so generally accessible as some of the other classics, we quote the epigram.

Pater nobilis, Aule, lumine uno
 Luscus Phryx erat, alteroque lippus:
 Huic Heros medicus: bibas caveto;
 Vinum si biberis, nihil videbis.
 Ridens Phryx, oculo, valebis inquit.
 Misceri sibi protinus deunces,
 Sed crebros jubet: exitum requiris?
 Vinum Phryx, oculos bibit venenum.

which may be somewhat freely rendered as follows:

Phryx, good friend Aulus, of one eye had lost
 The use, and in the other was dim sighted.
 To him his doctor said, "Count well the cost
 Of drinking; if you drink, your vision's blighted."
 Phryx, smiling, bade his eye a mock farewell,
 And ordered flagons deep, as quick as winking,
 One after one. Shall I the sequel tell?
 While Phryx the wine, the wine his sight, was drinking.

—K. W. M. in *New York Medical Journal*, June 13, 1903.

The second edition of the Graefe-Saemisch Text Book is being gradually published. The firm of Wilhelm Engelmann, of Leipzig, has already issued about fifty parts, the first fifteen of which have been briefly reviewed in these pages. Every ophthalmologist who reads German (and their number increases year by year) should subscribe for this valuable treatise—by far the most exhaustive of all the works on the eye and its diseases that have so far appeared in any language. It should form a part of every medical library, public or private, as the latest work of reference in ophthalmology. A glance at the titles and authors of the more recently published part (given in the order of their appearance) will convince the reader of the importance and value of this largest of the complete treatises.

Development of the Human Eye, by Prof. M. Nusbaum. Part 15.

The Cerebrospinal Relations of the Ocular Nerves, by Dr. St. Bernheimer. Parts 15 and 16.

Microscopical Anatomy of the Optic Nerve and Retina, by Prof. Greeff. Parts 17, 20, 21 and 22.

Microscopical Anatomy of the Lens and Zonula, by Prof. Oscar Schultze. Part 17.

The Defects and Congenital Anomalies of the Eye, by Prof. E. von Hippel. Parts 18 and 19.

Sympathetic Ophthalmia, by Prof. O. Schirmer. Parts 23, 24 and 25.

The Relation of General Diseases to Affections of the Ocular Apparatus, by Profs. A. Groenauw and W. Uhthoff. Parts 26, 27, 28, 32, 33, 34, 35, 36, 37, 38 and 40.

Microscopical Anatomy of the Eye, by Profs. Fr. Merkel and E. Kallius. Parts 29, 30 and 31.

Etiology and Pathological Anatomy of Paralysis of the Eye Muscles, by Prof. St. Bernheimer. Parts 39, 41, 42, 43, 44, 45, 46, 47.

Anomalies of Refraction and Accommodation, by Prof. Carl Hess. Parts 41 to 47 inclusive.

Operative Surgery of the Eye, by Prof. H. Snellen. Parts 48 and 49.

The Size of the Pupil as an Aid to Diagnosis.—Dr. J. T. Duncan gave this classification: a. Pupil may have pupils evenly contracted. This may indicate: (1) locomotor ataxia, (2) meningitis and encephalitis (early stages), (3) chronic inflammation, cervical cord, (4) apoplexy of pons, (5) epileptic fits (early), (6) uremia, (7)

tobacco amblyopia, (8) retinitis, (9) opium poisoning, (10) use of myotics. b. Pupils may be evenly dilated: (1) paralysis of both third nerves (post-diphtheritic), (2) intracranial tumors (late), (3) intracranial effusions, (4) irritation cervical sympathetic, (5) acute inflammation, cervical cord, (6) premonitory of locomotor ataxia, (7) after epileptic fits, (8) cataracts, (9) amaurosis, (10) acute mania or melancholia, (11) mydriatics. c. Pupils may be unequal, then we suspect: (1) locomotor ataxia, (2) general paralysis of insane, (3) unilateral lesion of third or sympathetic nerve, (4) pain in branch of fifth nerve, (5) old iritis, (6) carotid aneurism or tumor of neck, (7) use of a myotic or mydriatic in one eye, (8) unilateral cranial lesion, (9) acute glaucoma (unilateral). I. The pupils are contracted and fixed: In list a we exclude uremia, meningitis and encephalitis, retinitis, tobacco amblyopia. The remaining conditions can be differentially diagnosed. II. Pupils are evenly dilated and fixed: Rare. Present in (1) amaurosis, (2) use of mydriatics, (3) complete paralysis of both third nerves. III. Pupils are uneven but fixed: This usually points to locomotor ataxia or general paralysis of insane.—*Jour. A. M. A.*

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

VOLUME XII. No. 10. CHICAGO, OCTOBER, 1903.

NEW SERIES

ORIGINAL ARTICLES.

IDIOPATHIC MYOSITIS INVOLVING THE EXTRAOCULAR MUSCLES.

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ANN ARBOR, MICH.

(Illustrated.)

From Ophthalmological Clinic and Pathological Laboratory, University of Michigan.

Inflammation of muscles, not due to traumatism or propagation from neighboring parts, so rarely comes under the observation of the medical profession that the report of such a case can not fail to be of interest. It is only during the last ten or fifteen years that attention has been drawn to this important condition, and in all only some thirty-five cases have been reported. Among these I have been unable to find any similar to the one to be presented here, which involved primarily and exclusively the orbital muscles, and which, so far as I can learn, is the only case, with one exception, where these muscles were affected. For the history of this case I am indebted to Dr. Flemming Carrow, professor of ophthalmology in the University of Michigan. Briefly it is as follows:

Mr. H. P., fifty-nine years old, a farmer, was admitted to the eye clinic at the university hospital December 6, 1901. A German by birth, he had lived in this country for about thirty years. His family history, so far as he could tell it, was entirely negative. He had always been well except for occasional attacks of rheumatism, had never had gonorrhoea or syphilis, was a moderate smoker, and occasionally used alcoholic liquors, but never to excess. Patient stated that during the preceding summer the lids of his right eye became swollen, and the eye slightly inflamed. This condition occurred a number of times, but disappeared without any subjective symptoms. About four weeks before coming to the hospital during one of these attacks, he suddenly noticed that he was seeing double.

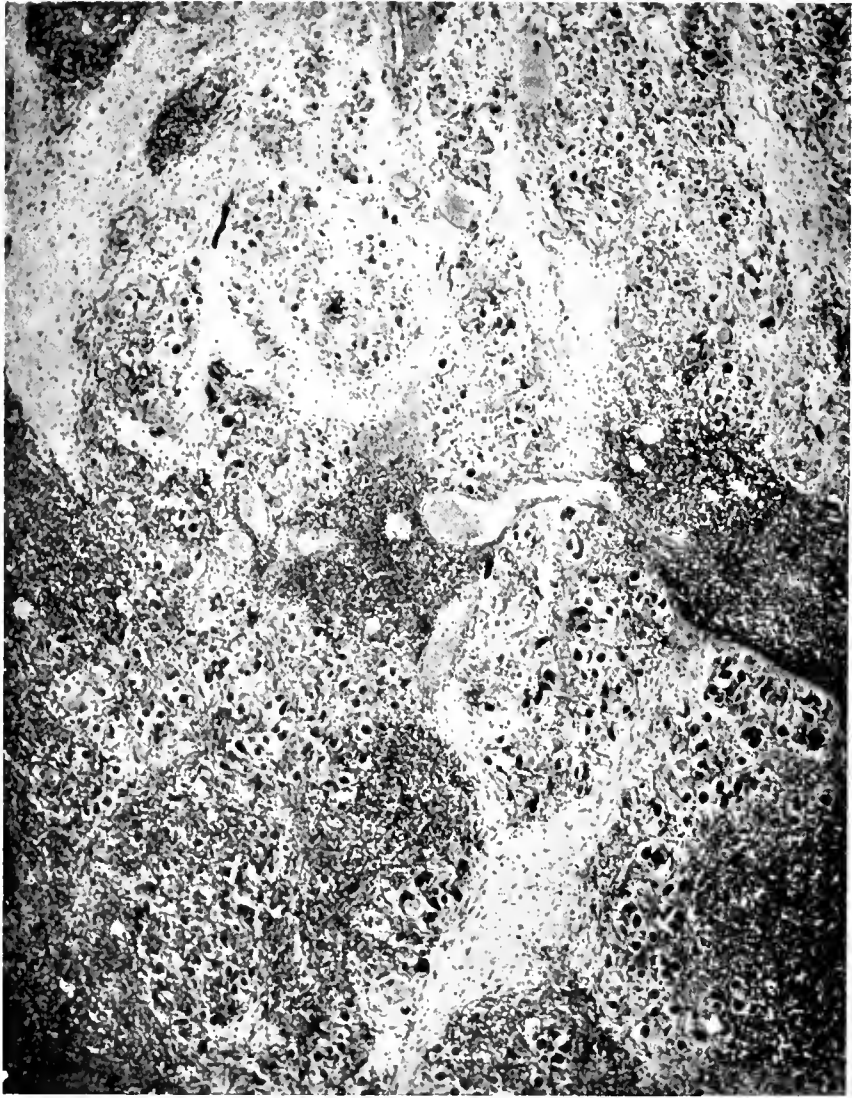
The bulbar conjunctiva became chemotic and a dull pain developed. He consulted a physician but received practically no treatment. As the condition continued to grow worse, and the pain more severe, he came to the hospital.

Status Praesens.—Rather undersized man, somewhat emaciated and feeble looking. Distinct exophthalmos of the right eye not reduced on pressure. Marked chemosis of the ocular conjunctiva, causing it to rise above the cornea and to protrude through the palpebral fissure as a red oedematous mass, over which the lids could not be closed. Palpebral conjunctiva reddened but not swollen. Cornea cloudy, its epithelium horny and desquamated, due to exposure and interrupted nutrition. Iritis quite marked. Interior of the eye not visible on account of haziness of cornea. Some freedom of movement of the eye remained, such movement being very painful. Palpation over the eye revealed a hard circumscribed immovable mass in the orbit. Right eye vision = 15/60; left eye vision = 15/30. Binoocular diplopia. Left eye perfectly normal. Joints of fingers showed some enlargement due probably to manual work or possibly to rheumatism. Patient also suffered from a muscular rheumatism involving especially the left arm and shoulder, neither of which presented any objective symptoms. No exaggerated pain on pressure over the peripheral nerves. No disturbances of sensation.

The patient was sent to the ward and an ice cap applied to the eye continually for the next two days. A thirtieth-grain of strychnine was also given three times daily until he left the hospital. Under general anesthesia an exploratory incision was made at the outer canthus on December 9, with the idea that some form of new growth was causing the exophthalmos. None, however, was found, but instead an enormously enlarged superior rectus muscle, the mass felt on external palpation. The pain continued to be very severe, and as panophthalmitis was imminent, enucleation was advised and was performed on December 12. The superior rectus was found enormously enlarged, immovable, hard and board like to the touch, and could be traced from origin to insertion. There was no cellulitis of the orbital tissue. The other extra-ocular muscles were normal. The patient made an uninterrupted recovery and left the hospital on December 20, 1901, the attack of rheumatism having gradually subsided. During the fourteen days of his stay in the hospital his temperature, taken three times daily, averaged 99.3, the extremes being 100.3 the evening following the operation and 98.1 the morning he left.



Condition of second eye day of operation.



Section of superior Rectus muscle, showing interstitial myositis.

A piece of the superior rectus muscle, removed for microscopical examination, showed it to be about eight times its normal size. It was fixed and hardened in bichloride, embedded in paraffin, and on section presented a striking picture of an interstitial myositis, with the resulting parenchymatous changes. The epimysium was very oedematous and showed a general small cell infiltration, with collections here and there, but no suppuration was present. Areas of hemorrhage under it extended down into the perimysium. At the end of the specimen the epimysium was increased in thickness. This change was also seen in the endomysium in a number of places, thus resembling the changes produced in myositis fibrosa. The perimysium throughout contained large areas of leucocytes plainly visible to the unaided eye. Some of these areas were circumscribed; others spreading more diffusely had penetrated into the endomysium between the muscle cells, pressing upon and destroying them. In the centers of these areas many of the leucocytes were undergoing degeneration. Marked oedema existed throughout. Blood vessels were numerous, dilated and filled with blood cells. Around them, more especially the larger ones, there was an increase of adipose tissue. The striae of the muscle fibers were lost, and the individual muscle fibers themselves were atrophic and widely separated by the oedema. The protoplasm of the majority stained diffusely blue with kresylecht violet, differing from the normal light green, indicating a coagulating necrosis. Some retained their nuclei intact, but practically all presented a granular appearance, many having completely broken down into a mass of detritus—simple necrosis. Numerous mastzellen and plasma cells were present, scattered throughout the section. Although especially sought for, no bacteria or parasites were found. Pathological diagnosis:

Acute interstitial myositis.

The eye was not examined microscopically.

On February 12, 1902, the patient returned, stating that his remaining eye was painful, especially on movement and on closing the lids, thus closely simulating the beginning of the previous trouble in the right eye. Examination showed the lower quadrant of the bulbar conjunctiva over the insertion of the inferior rectus muscle to be chemotic, reddened and protruding so that the lids could with difficulty be pulled over it. Slight exophthalmos was present. From the pathological report of the previous trouble and the fact that an attack of rheumatism was again in evidence, having developed simultaneously with the eye trouble, sodium salicylate in drachm

doses was prescribed every three hours, and hot water bags applied to the eye. After a week's trial, no improvement resulting, potassium iodid, ten grains three times daily, was added and a poppy-head poultice applied locally to the eye. On February 22, eleven days after admission, the salicylates were discontinued and the iodid gradually increased to eighteen grains three times daily. Despite all treatment the chemosis gradually increased, involving the entire bulbar conjunctiva, exophthalmos became more and more marked, keratitis and iritis developed and the sight gradually failed until March 4, when the patient left the hospital, it was reduced to 15/120. On April 2, when he returned to have the eye removed, he was totally blind, the cornea presenting a purulent keratitis, and the anterior chamber filled with pus. Enucleation was performed on April 7. All the extraocular muscles were increased in size and could be distinctly felt as hard cord-like bands, similar to the superior rectus of the right eye. As before no involvement of the cellular tissue of the orbit was demonstrable. On April 15 he left the hospital.

The enucleated eye was fixed and hardened in Müller's solution and embedded in celloidin. Section confirmed the conditions noted clinically. The cornea was thin and showed a marked keratitis. Iritis was well developed and cyclitis was present. No pathological changes could be made out in the choroid or retina. There was beginning calcification of the lens—secondary cataract. All the inflammatory changes were of more recent occurrence than those observed in the muscle, thus proving conclusively that the myositis was the primary condition.

In considering this case the question immediately arises regarding the nature of the myositis. Was it a primary idiopathic condition arising in the muscle itself, or a secondary process dependent upon some local or general condition? It will be noticed that in the beginning, especially in the left eye where the course could be watched, the symptoms were almost classical for tenonitis, namely, swelling and oedema of the upper eye lid, confined to the upper and retro-tarsal part, slight exophthalmos, pain on the slightest movement, limitation of movement and chemosis beginning over the insertion of one of the recti muscles, and gradually extending over the whole surface. Whether such a comparatively rare condition existed primarily can not be definitely stated, although such a supposition might seem warranted with the rheumatic diathesis present. All the symptoms above mentioned, however, could be produced by a primary inflammation of the muscles. That this was the true con-

dition seems more probable for two reasons. First, in the right eye the only muscle involved was the superior rectus. From direct extension of inflammation from Tenon's capsule, we would expect all the muscles passing through it to be involved equally; second, myositis resulting from an idiopathic tenonitis has never been seen in any of the reported cases of this affection. No other local condition such as osteomyelitis, periostitis, or cellulitis was present to account for the condition.

Among the general conditions of which myositis may be a local manifestation are to be mentioned syphilis and the various other infectious diseases, metastatic infection following trauma or abscess formation, and rheumatism. As there is no history of the infectious diseases and no other signs of their presence, their influence on this case can be excluded. Likewise trauma and abscess formation can be neglected. Rheumatism, however, was present, developing simultaneously with the trouble in each eye. The latter is a condition which is so poorly understood etiologically and anatomically that its bearing on such a case as this must needs be considered very indefinite. "In the articular form changes characteristic of inflammation have been seen in the neighboring muscles, their fibers being swollen and granular, or in a state of vitreous degeneration. In the muscular form there is probably a slight manifestation of a similar tendency, but the affected muscles do not exhibit any visible changes, and when swelling, redness, heat and tenderness are apparent the muscle is probably invaded by some other form of inflammation." (Lyman.)

In this case the phenomena observed correspond closely with the requirements laid down by Seriba for primary myositis. The swollen muscles retained accurately their shape and were absolutely distinct from their surroundings. The eye itself was free from inflammation until a secondary process developed through the cornea as a result of the exophthalmos. For this reason, therefore, as well as by a process of exclusion, this appears a clear case of primary idiopathic myositis.

The recognition of primary myositis dates back to Froriep and Virchow about fifty years ago. According to the latter the pathological changes in this affection may arise in the muscle cell itself, or in the interstitial connective tissue, or in both, it being often difficult to determine from which the process primarily originated. In the parenchymatous form the muscle fibers undergo a number of retrograde changes—loss of striae, cloudy swelling, fatty infiltration

and degeneration, and finally destruction. When the process is essentially interstitial it may lead to the formation of small cell infiltration; when more extensive to pus; or to granulation or fat tissue, tendon or bone, which substances forcing themselves between the muscle fibers result in a purulent, fibrous or ossifying myositis, as the case may be. Of the latter two, nothing further need be said, as they are foreign to this subject. The acute inflammatory form has been described under the various names of poly- or mono-myositis, dermatomyositis, when skin eruptions are marked, and neuromyositis. The histological changes in the muscle are practically identical in all these conditions. Clinically the neuromyositis can be differentiated by the preceding motor, sensory and trophic symptoms characteristic of a nervous affection.

Idiopathic inflammatory myositis was first described clinically by Unverricht, Hepp and Wagner simultaneously in 1887. The symptoms, based on these cases of fever, pain and swelling of the muscles of the extremities, oedema and rashes of the overlying skin, the process progressing upward to involvement of the muscles of respiration and deglutition, and death from suffocation or inhalation pneumonia—have been modified by subsequent less severe cases, so that at the present time it is quite impossible to present any classical set of symptoms. They vary according to the severity of the infection and the number of muscles involved.

Etiologically idiopathic myositis is closely related to acute periostitis, spontaneous acute osteomyelitis and acute rheumatic arthritis. Similar causes predisposing, there is in each of these conditions an acute inflammation which in the different diseases localizes itself in the different tissues. The nature of the etiological factor of myositis is unknown. There is a general belief that it is an infectious process. Pfeiffer contends that the cause is an animal parasite on account of a similar condition due to protozoa seen in lower animals. No bacteria have been found in a typical case. Their absence gives support to the theory of an intoxication. Senator and Kell report cases which followed the eating of stale crabs and diseased fish. Senator also suggests that it may be the manifestation of an auto-intoxication. All that can be said is that probably more than one etiological factor must be considered and in a given case, sometimes one, sometimes another may be operative.

Although formerly regarded as a necessarily fatal disease, the prognosis may now be said to depend upon the severity of the onset, the number and location of the muscles involved, and the height of the fever. Each case, therefore, is a law unto itself.

The treatment is, of course, symptomatic, as the cause is unknown. Numerous remedies, among which may be mentioned the salicylates, potassium iodid, antipyrin and phenacetin, and locally poultices, carbolic acid compresses and ointments of various kinds have been employed, with but little success in shortening the disease. In Laquer's case a deep incision extending to the bone was the only procedure which would bring the condition under control. Likewise in this case relief of tension by removal of the eye seemed to effect a cure.

This case adds nothing to our knowledge of the etiology or course of the disease. Its local symptoms are the same as seen in other cases, modified by position. In its recurrence it resembles Laquer's and Herzog's cases, in which the biceps of the left arm and the right vastus internus were involved respectively. In the former the condition developed seven times in fourteen years, and was followed the last time by an acute attack of articular rheumatism. The author suggests that the intermittent character is due to the breaking forth from time to time of a specific infectious virus similar to that supposed to cause rheumatism, a theory which is supported by this case.

It was formerly thought that the muscles of the extremities and those of respiration and deglutition were the only ones involved in idiopathic myositis, the remaining muscles being spared. In subsequent cases those of the face, tongue and even of the heart have been attacked, and in 1891 Strümfell reported a case where the patient without known cause was seized with headache, nausea and vomiting and developed pain and swelling in the muscles of the extremities, difficulty in masticating, swallowing or speaking, and prior to death ptosis and ocular paralysis. The microscopical examination showed the cord and nerves to be normal. The muscles presented an interstitial myositis with marked parenchymatous changes. The absence of involvement of extraocular muscles has been advanced as one of the points differentiating idiopathic myositis from trichinosis. This case, together with that of Strümfell, would seem to demonstrate that such a distinction does not exist.

Although by their position the extraocular muscles are not liable to secondary inflammation in articular rheumatism, it seems probable, as Wright has recently called to attention, that they are liable to be the seat of a muscular rheumatism, and there seems to be no reason why they should be immune to other diseases of muscles.

This case then can be said to add to our clinical knowledge of

this rare condition by forcibly illustrating its possible malignancy by position, and by completing the list so that it now may be truthfully said any muscle of the body may be the seat of an idiopathic myositis.

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A NEW CHLOROFORM INHALER.

P. A. JORDAN, A. B., M. D.,

Interne Ill. Charitable Eye and Ear Infirmary, Chicago.

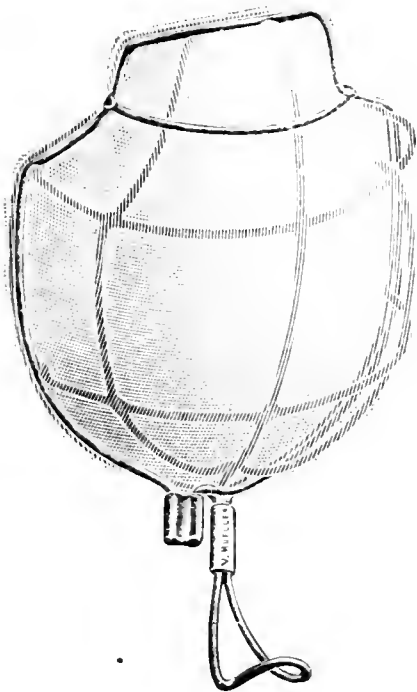
(Illustrated.)

The chloroform mask seen in the accompanying cuts was devised by the writer while interne at the Illinois Charitable Eye & Ear Infirmary. The need of such an inhaler was demonstrated by the continuous infringement of the common inhaler upon the field of operation about the eye. Since the operating in this institution is exclusively eye, ear, nose and throat work, the field of operation is often obscured by the mask ordinarily used. This is especially true in operations about the eye. The constant need of an inhaler which would not contaminate the wound and which would give an unobstructed field for operation, prompted the present modification of the commonly used inhaler.

It is smaller in all diameters, being $4 \times 2\frac{1}{4} \times 1\frac{1}{2}$ inches; the handle instead of pointing upward over the forehead, extends over

the chin. The part of the mask covering the nose is shaped so as to fit the contour of the nose closely at its tip, arching inward on either side, then outward and downward over the mouth in the usual manner. This gives a clear, unobstructed field for operation about either eye. By closely fitting the face it is not easily shaken off by the tossing, semi-conscious patient when being anesthetized.

It may be used for administering ether from a drop bottle after inlaying the gauze pieces with cotton.



Its advantages are:

1. Affords a large clean field for operation about the eye.
2. Adheres to face without holding, better than ordinary inhaler.
3. Is applicable to anesthetic for any kind of operation as well as on the eye.
4. May be used for giving ether.
5. Affords better field for view of bystanders in clinic operations.

I wish to thank V. Mueller & Co., of Chicago, for assistance in modeling this instrument.

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THE CORRECT USE OF TERMS IN OPHTHALMOLOGY.

DR. W. N. SUTER,

WASHINGTON, D. C.

In the August number of the RECORD there appeared an article by Dr. George F. Suker on the Correct Use of Terms in Ophthalmology. In this article I find my name mentioned among other writers who, in Dr. Suker's opinion, have used certain words improperly. While highly approving of the purpose of Dr. Suker's article, I must express my disagreement with him in regard to each of the words which he has considered.

1. *Anisometropia* and *Antimetropia*.—The former of these words indicates, in accordance with its etymology, an *inequality in the measure* (with reference to a standard) of the two eyes. There is no reason why the use of this word should be limited to express different degrees of the same kind of ametropia. Surely Dr. Suker would not say that an eye having 1 D. of H. bears the same relation to a fixed standard as does the fellow eye having 1 D. of M. Since the measure is unequal in two such eyes, the condition is properly called *anisometropia*. Since also in this illustration the ametropia of each eye is opposite to that of the other eye, the condition is called *antimetropia*—that is, antimetropia is a special form of anisometropia.

2. *Brachymetropia*, *Hypometropia*, and *Myopia*.—Dr. Suker objects to the word myopia as being etymologically inappropriate, and he would substitute therefor brachymetropia or hypometropia. The latter must be condemned because in spoken language it would be indistinguishable from hypermetropia. Brachymetropia is unobjectionable, but it is not probable that this word can ever be brought into general use in opposition to so simple a word as myopia. Whatever may be the derivation of the latter word (and the study of language shows that few words retain their original etymological significance), it had acquired a definite and unmistakable meaning at the time of Donders' great work, and he justly appreciated the fact that the introduction of a new word was unnecessary.

3. *Hypermetropia* and *Hyperopia*.—Dr. Suker maintains that hyperopia denotes *excessive visual acuity*. If the same meaning—*excessive*—is applied to the prefix in hypermetropia, this word also must denote *excessive measure of vision*, or vision exceeding the standard. In either word *ὑπερ* implies position, and refers to the fact that the *focus* for parallel rays is *beyond* the retina. It must be admitted that the shorter word is an abbreviation, but so also, for this matter, is hypermetropia, for there is nothing in this word to show that it refers to the position of the *focus*.

Hyperopia is properly defined as synonymous with hypermetropia, and it has been so used for many years. *Hyperopsia*, similarly derived, is defined as excessive visual acuity; but, since this word is not in common use, there is no liability of its confusion with hyperopia.

AN UNUSUAL CASE OF PTOSIS.

BY L. A. W. ALLEMAN, A. M., M. D.

BROOKLYN, N. Y.

The patient, presenting the condition to which I desire to call your attention, a school boy, fifteen years of age, was first seen by me at the eye department of the Polhemus Memorial Dispensary, on February 28, 1902.

He stated that about two weeks before the visit while looking out of the window he had been struck in the back, and thrown violently forward, striking the outer angle of the left eye against the window frame.

The contusion was not severe and no swelling or discoloration followed, but he noticed almost immediately that the skin of the upper eyelid drooped, and falling below the lid margin, seriously interfered with vision and produced an unsightly deformity. No other symptoms were present; the eye itself was in all respects normal; vision and motility were unimpaired, and while the case seemed at first glance one of ptosis, no true ptosis was present.

The upper lid could be elevated as easily as that of the other eye, but when the lid was raised the integument did not follow it, and the fold of skin falling below the lid margin naturally looked like a drooping eyelid, but when a probe was gently applied to the upper eyelid with just sufficient force to hold the skin in position, the deformity entirely disappeared, the lid presenting its normal appearance.

The skin was neither atropic nor thickened, and in color, sensibility and in all other respects seemed entirely normal; it was simply loosened from its attachments to the subcutaneous tissues.

By painting a horizontal line of contractil collodion on the upper lid the skin could be retracted sufficiently to prevent its interfering with vision, but the cosmetic result was far from satisfactory, for

all lines and wrinkles of the lid disappeared when the redundant tissue was drawn in by the collodion, thus giving the lid an unnatural ironed out appearance.

This demonstrated that the removal of a piece of skin would not alone be sufficient to remedy the deformity, and that the sulcus above the lid margin must be restored, to correspond to that of the other eye, which could only be brought about by anchoring the skin of the lid to the subcutaneous tissues at the point where it was desired to produce the fold.

This was accomplished in the following manner: A small piece of rubber was first threaded on a suture, both ends of which were passed through the eye of the needle, entering at the point on the lid where it was desired to produce the sulcus; the thread was carried beneath the skin of the lid to the upper border of the tarsal cartilage; one thread was then detached from the needle, and another small piece of rubber perforated by the needle, and pressed down firmly against the skin, the suture when tightly drawn, tied upon it.

Three sutures were employed, one in the center and one on either side of this, midway between the center and the canthus. These were allowed to remain in place for a week when a very satisfactory fold had been produced in the lid.

While this lessened the deformity to a considerable extent, the skin was still somewhat redundant, and to relieve this and to secure a still firmer anchorage for the skin, about two weeks after the first operation I removed a piece of skin from the center of the lid. An oval strip was dissected up and removed; it was about eight mm. broad in the center and extending about two-thirds the distance to the canthus on either side; the wound was closed by superficial silk sutures, and healed at once showing no scar, and producing an entirely satisfactory cosmetic result.

This case has been reported as one of ptosis rather for convenience, than because it is properly so designated.

Ptosis is a "Falling of the upper lid" either from increased weight of the lid or defective innervation, but in the case just described there was no lack of motility of the lid proper; there was neither hypertrophy of the lid, nor any interference with the nerve supply.

The function of the lid was not at fault, but the skin of the lid had been detached and failed to follow it in its upward excursion.

¹Noriss & Oliver, III, p. 87.

This condition has been described by Sichel² as "ptosis atonique." He says: "The skin of the eyelid is flaccid, wrinkled and ruffled transversely, sometimes it forms a large horizontal fold which hangs down over the ciliary border."

Hotz³ reports a case, a female of thirty-five, who, after a prolonged period of weeping, developed much swelling of the lids which persisted for several months. When the swelling subsided the skin of the lids drooped as in the case here described. When reporting the case as "So-called ptosis atonica" Hotz suggests that "prolapse of the skin of the lid" would be a more proper designation.

A condition very similar in appearance but of entirely different causation may be produced by a subcutaneous fat deposit "ptosis adiposa"—Arlt, or by hypertrophy of the lid.

The case here reported is unique only in its causation, as I have been unable to find a case of "ptosis atonica" due to traumatism; the lesion, however, is the same.

In some patients whose connective tissue presents less than the normal resistance swelling of the lid is sufficient to stretch or rupture the bands connecting the skin to the subcutaneous tissues, and in this instance the traction from the glancing blow produced the same result, a conclusion to which we are forced by the absence of any other competent explanation.

A CASE OF OSSIFICATION OF THE CHOROID AND VITREOUS.

BY FRANK ALLPORT, M. D.,

Professor Ophthalmology and Otology, Northwestern University Medical School, Etc.,
Chicago, Ill.

Instances of osseous degenerations of the choroid and vitreous are not so numerous but that they should at least be briefly recorded. The patient, a gentleman of about fifty-eight years of age, in fair average health, consulted the writer February 20, 1903, at the suggestion of his family physician, for a reddened, sensitive and painful right eye. Perhaps thirty years ago, while hunting, a shot grazed his cornea, producing, as he describes it, a painful, reddened eye, from which he recovered with loss of vision. The eye gradually shrunk, and after some years he wore over it an artificial shell.

²Annales d' Oculist, t. XII, p. 188.

³Archives of Oph. VIII, p. 400.

The eye was never painful, but he had once an attack of iritis in the other eye, with a perfect recovery.

Early in February, 1903, he commenced to have extreme pain in the injured eye, accompanied by redness and sensitiveness to the touch. The other eye remained well. At the writer's first visit an immediate enucleation was advised and refused. The little stump was hard and unyielding to pressure, and a fine needle introduced through the sclera disclosed a hard underlying shell. After a few days the acuteness of the pain subsided and the stump became semi-quiet. Encouraged by these quieter periods into believing that entire relief would come at last, Mr. A. struggled through five of these attacks, notwithstanding the earnest advice of his medical advisers. Dr. Casey A. Wood saw the case with the writer and coincided with the diagnosis and advice. Eventually, however, recognizing the futility of his hopes, Mr. A. consented to the removal of his eye-ball, and the operation was performed April 20, 1903, with the kindly assistance of Dr. Wood, Dr. H. Peterson administering the chloroform. After removal the ocular remnant was opened and the choroid and vitreous were found transformed into what proved to be bone tissue, of about the size and shape of a molar tooth. The report of the Columbus Medical Laboratory is here added.

"These specimens were first decalcified. Histologically these show a moderate amount of true bone structure. Bone corpuscles, bone substances, osteoblasts and osteoclasts are recognized."

92 STATE STREET.

A CASE OF VERNAL CONJUNCTIVITIS.

BY FRANK ALLPORT, M. D.,

CHICAGO, ILL.

Professor Clinical Ophthalmology and Otology, Northwestern University Medical School Etc,
(Illustrated.)

Enough has been written on the subject of vernal conjunctivitis, its history, appearances, pathology, treatment, etc., to discourage, at least at present, its further discussion unless something of actual therapeutic value can be suggested. It is with the conviction that such a remedy has been found that the writer ventures to add something more to the literature of this interesting, but hitherto discouraging subject; and he trusts that charity may be extended to him for the almost unpardonable crime of rushing into print with

but one case as a text. So far as the writer's knowledge extends no well authenticated case of a cure of this stubborn disease exists, and it may furthermore be asserted that no remedy has yet even been proposed that has shown itself as really capable of affording permanent and satisfactory relief during an entire season of hot weather. The writer is well aware that these positive statements will fall upon doubting if not incredulous ears, with those readers who claim to have seen hundreds of cases of vernal conjunctivitis, and to have encountered no especial difficulty in their speedy cure; but being somewhat skeptical as to proper diagnosis having been made in such cases, he ventures the assertion that no one who has ever actually observed and recognized this peculiar, distressing and intractable disease, and who has—season after season—endeavored to afford relief, not to say cure, will ever again confound it with phlyctenular conjunctivitis, or any other ocular disease, and will not easily or carelessly dispose of the therapeutic side of the subject. The writer has never seen more than ten cases of this disease, for which he desires to distinctly register his profound gratitude, and feeling that much time may elapse before he sees another upon which he may repeat his experiments of the past season, and believing that he has succeeded in curing a case, and knowing that he has at least afforded absolute relief from any suffering whatever for an entire summer, the satisfactory result has led him to report this one case, in order that his colleagues, who may here and there be struggling with this provoking malady, may turn to the X-ray and find relief.

My patient is a young lady (Miss E. N.) about nineteen years of age, living among refined and wealthy surroundings in the state of Kentucky. Her general health is poor and she is tall and anemic in appearance.

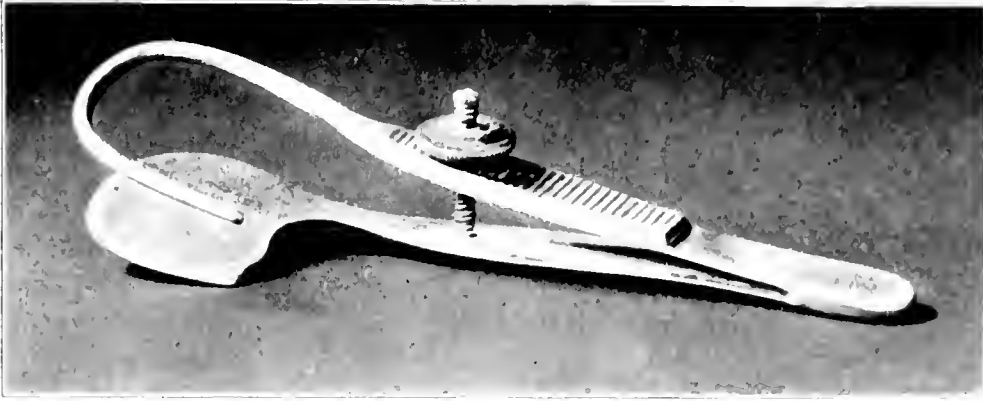
About seven years ago she commenced having characteristic palpebral vernal conjunctivitis, for which she consulted numerous specialists, both in this country and Europe. She was always treated for chronic trachoma, and never with the slightest success. The growths were frequently rolled with Knapp's forceps, and amputated entirely, but always recurred worse than before. Her trouble invariably began on the appearance of hot weather and disappeared at the first frost. A sojourn to cold climates during the summer brought measurable relief. With this discouraging history and in great distress from a summer full of suffering, she presented herself to the writer August 5, 1902. The case was unmistakably and characteristically one of palpebral vernal conjunctivitis. No one

who has ever seen and recognized the disease can ever mistake it. Both upper lids drooped, giving the patient a dull, anxious, and sleepy appearance. Upon everting the lids, enormous warty, flattened, cracked masses were seen, that the microscope showed to be epithelial in character. A slight, stringy, mucous discharge could be picked from the tissues, and the characteristic whitish, milky appearance of the conjunctiva was distinctly evident. The subjective symptoms were those usually observed in this disease, viz.: excessive photophobia, inability to use the eyes, burning, itching, etc., etc. No ulceration of the cornea has ever occurred. The case has been seen from first to last by the writer's associate in practice, Dr. Paul Guilford. The writer was just on the point of departing for his summer vacation when the patient first presented herself for consultation, and, therefore, she was dismissed with instructions for soothing treatment, such as adrenalin and salycilate of soda lotions, cold applications, tonics, etc., and instructed to return September 11, which she did. At this time the growths were thoroughly amputated, curetted and cauterized, several times, but always returned. She was treated surgically and otherwise for several weeks this fall, and again during the spring of 1903, with the usual remedies, and with the usual result, viz.: absolute failure.

Knowing the results obtained by Dr. W. A. Pusey and others in the removal of epithelial and other masses by the X-ray, the writer determined to test the effect of this agency upon the lids of Miss N., and she arrived in Chicago June 11 for this purpose. At the suggestion of Dr. Pusey the growths were first amputated, as by this means the work of the X-ray would be much facilitated. The patient was then placed under the care of Dr. Pusey for daily exposures.

Dr. Pusey and the writer devised an instrument for passing under the everted lid to protect the eye-ball from the effects of the X-ray, and the same instrument held the lid in an everted position during the treatment, the handle being held underneath the protecting mask by either the operator or the patient. Dr. Pusey prepared a lead mask with an elliptical opening, which was placed directly over the everted lid, so that only the epithelial masses were exposed to the action of the rays.

The treatments were begun mildly and cautiously to protect the patient from possible injury, the exposures at first lasting only two or three minutes. As no harm was done, and as confidence became established, the sittings were prolonged until about ten minutes were allowed for each eye.



This is the actual size of the instrument. It will be seen to be almost the same thing as a chalazion forceps, but the shield is larger, in order to fully protect the eye-ball from the effects of the x-ray. The lid is everted, and the shield of the instrument inserted between the eye-ball and the lid. The upper blade is gently screwed down over the palpebral margin of the everted lid in order to maintain the eversion during the treatment.

The instrument is made by Chambers, Inskip & Co., of Chicago.

The patient was treated in all about eighty times, and while but little, if any, improvement could be at first observed in the diminution in size of the growths, after a while they began to disappear, and by September were practically gone, leaving in their stead smooth and apparently harmless cicatricial tissue. During the entire course of the ray treatment, the patient has been perfectly free from photophobia, redness, itching, irritability, etc., the drooping lids have disappeared, the use of the eye has been resumed, and, in other words, she has passed a summer of perfect comfort, notwithstanding the fact that her treatment has been carried on during the hottest months of the year. The writer is aware of the fact that positive assertions are not actually warranted until next summer; nevertheless he believes that the case is cured, and sees no reason for believing that the growths will reappear upon soil which is now ordinarily healthy cicatricial tissue. It would not be expected elsewhere in the body; why, therefore, should it appear on the lids? The writer desires to say that this is also the opinion of Drs. Pusey, Casey A. Wood, T. A. Woodruff and Paul Guilford, all of whom have seen and carefully examined the case, and some of whom have been associated in its treatment. Whether, however, the case proves to be absolutely and permanently cured or not, of one thing we may be positively certain, the treatment this patient has received has given her a summer of perfect rest and comfort, which in itself is most desirable, and so far as the writer's experience is concerned, unprecedented, except by removal to a cold climate during the hot summer months. Dr. Pusey feels that in order to be on the safe side, the patient should have three or four weeks' treatment next spring.

92 STATE STREET.

SOME FORMS OF IRREGULAR ASTIGMATISM; THEIR DETECTION AND CORRECTION.*

BY F. B. EATON, M. D.,
SAN FRANCISCO, CAL.

(Illustrated.)

Time continues to demonstrate more than ever that accurate refraction is the most important, as it is the principal, work of the oculist. That accurate, pains-taking work is more or less shirked, the result either of physical weariness or of indifference, by those whose waiting rooms are crowded, we also know to be true.

It is my aim to here present as clearly as I can, certain phenomena which have occurred with sufficient frequency to attract my attention, their interpretation and their practical value. Many oculists consider irregular astigmatism, especially when slight, as uncorrectible, or too trifling a matter to consider: so they make no attempt to remedy it. Unknowingly, however, they do sometimes correct it by placing the axis of the cylinder empirically in a certain position, which, when analyzed, shows an unintentional correction of an irregular astigmatism. Of course irregular astigmatism exists in all eyes to a greater or less extent, and often is so slight and so irregular that its correction is either unnecessary or impossible.

I expect, nevertheless, to show that it exists not infrequently in such form in the daily run of asthenopic patients, as to warrant, nay, to command our best efforts, and that it can be detected and corrected to the last relief of the patient.

To avoid misunderstanding I desire at the outset to state, in spite of the contrary and more or less authoritative statements of others, my firm belief in the very frequent occurrence of so-called unequal or astigmatic contraction of the ciliary muscle, i. e., of *dynamic* astigmatism, which I hope to consider in a future paper. But the irregular astigmatism here considered is not to be confused with or mistaken for, this dynamic astigmatism, the result of ciliary spasm. On the contrary it is *static*; persists under complete and prolonged cycloplegia, and remains unchanged after repeated and careful examinations. But nothing but such examinations and full cycloplegia will prevent the observer from mistaking a temporary ciliary spasm for the static condition here considered.

For years I have noticed, as doubtless others have, that after equalizing the two principal meridians by the proper cylinder under

*Read before the San Francisco Society of Eye, Ear, Nose and Throat Surgeons, October 15, 1903.

cycloplegia, two other meridians remain unequalized, as shown by the appearance of one or several lines on the chart remaining indistinct. The meridian indicated thus is, of course, less than 90° from one, and greater than 90° from the other principal meridian. When this condition is overlooked it is generally because the widely dilated pupil is not "stopped" by a perforated disc as pointed out by me in *THE OPHTHALMIC RECORD* of January and July, 1902; the patient, owing to the general "blur" does not observe it.

As is well known this irregular astigmatism can be corrected, when (a) *no* spherical lens enters into the combination, by grinding the cylinders on each side of the glass; or, (b) *with* the sphere, by a toric lens.

But, as Donders showed many years ago, the sphero-cylindric equivalent of the sphero and two cylinders can be calculated by the equations: (I) $\text{tang. } 2\gamma = \frac{C_1 \sin. 2\alpha + C_2 \sin. 2\beta}{C_1 \cos. 2\alpha + C_2 \cos. 2\beta}$ (II) $C_3 = \frac{C_1 \sin. 2\alpha + C_2 \sin. 2\beta}{\sin. 2\gamma}$ (III) $D = \frac{C_1 + C_2 - C_3}{2}$ where $C_1 =$ the first cylinder in dioptries; $C_2 =$ the second cylinder in dioptries; $C_3 =$ the resulting cylinder in dioptries; $\alpha =$ the angle made by C_1 with the meridian 0° ; $\beta =$ angle made by C_2 with the meridian 0° ; $\gamma =$ angle made by C_3 with the meridian 0° ; and D the resulting sphero in dioptries. The equations of trigonometrical origin, however, are seldom used partly because it requires some considerable mathematical knowledge to give the several trigonometrical functions their proper algebraic signs, and partly because of the time required to make the calculations.

In a valuable paper: "On the Refractive Value of Any Two Cylinders, etc." (*Arch. of Oph.*, vol. xxii, 1893, p. 435), Carl Weiland pointed out a simple and rapid method of obtaining the new sphero-cylindric combination, and described an instrument devised by him for the purpose, and founded upon the above equations. I have not used this instrument, but employ a substitute available by any one, by which the combination can be determined in a few moments.

My apparatus (which any one can easily construct) is nothing but a school slate eight inches by twelve inches, on which, with a pair of strong sharp-pointed carpenter's dividers, I have described a series of ten concentric circles, the largest of which is twenty centimetres in diameter, each having a diameter of two centimetres

Skiascopy O. D. under cycloplegia $+ 4.00s \text{ } \ominus - 6.00 \text{ cyl. axis } 10^\circ \text{ } \ominus - 7.00 \text{ cyl. axis } 30^\circ \text{ O. D.}$ By subjective tests, w. $+ 4.00s \text{ } \ominus - 6.00 \text{ cyl. axis } 10^\circ$, the chart lines at 10° and 100° were equalized, but now the line at 120° was much the clearest. w. $+ 4.00s \text{ } \ominus - 6.00 \text{ cyl. axis } 10^\circ \text{ } \ominus - 1.25 \text{ cyl. axis } 30^\circ \text{ V. } = 21/19.$

Fig. 1 shows how the equivalent of the two cylinders was obtained. The point A was marked on the radius of 20° (twice $10^\circ = \text{angle } 2\alpha$) where it intersects the circle marked 6 (D). Point B was marked on the radius 60° (twice $30^\circ = \text{angle } 2\beta$) where it intersects the circle of 12.5D. From A with a radius DB, the arc a a, and from B with a radius DA, an arc b b, is described. Drawing B, C, and A C to complete the parallelogram, and its diagonal D C, equal to 7D. This last cuts the angle $26^\circ (= 2\gamma)$ one-half of which is

$13^\circ (= \gamma)$. By Donder's formula III: $\frac{6 + 1.25 - 7}{2} = 0.12 \text{ sph.}$

which deducted from the $+4.00s$ gives the completed formula: $+ 3.88s \text{ } \ominus - 7.00 \text{ cyl. axis } 13^\circ$, with which $V = \frac{21}{39}$. This combination ($+ 4.00s$ replacing 3.88), after recovery from the cycloplegia entirely relieved the asthenopia, with the above improvement of vision.

The original vision of this patient being so poor, while the exact position of the axis of so strong a cylinder is imperative, the value of the method is apparent.

The case just described illustrates the procedure when the two cylinders have the same sign. Another will show how to proceed when the cylinders are of opposite signs:

R. B., aet. twenty-four. Glasses are unsatisfactory, giving poor sight, and are uncomfortable. Is wearing O. D. $-3.75s \text{ } \ominus - 0.50c \text{ axis } 170^\circ \text{ V} = \frac{20}{x}$. O. S. $-3.25s \text{ } \ominus - 0.50c \text{ axis } 180^\circ$. By skiascopy and subjective tests O. w. $-3.75s \text{ } \ominus + 1.00 \text{ cyl. axis } 115^\circ \text{ } \ominus - 1.25 \text{ cyl. axis } 155^\circ \text{ V} = \frac{20}{x}$. Using the figures along the vertical diameter, which represent smaller dioptric values (Fig. 1), we proceed as regards the $+ 1.00 \text{ cyl.}$, exactly as before, the point A' being at circle 1 at its junction with radius of 230° (twice 115°); but B', indicating a minus cylinder of opposite sign is placed on the radius 130° , since 310° (twice 155°) $- 180 = 130^\circ$; the rule being to subtract 180 from the doubled number of the number of minus degrees.

C'B' is drawn parallel to A' D to complete the parallelogram and DC' indicates at once $- 1.25 \text{ cyl. axis } 115^\circ$. To find the sphere:

$$\frac{+ 1.00 - 1.25 - (- 1.25)}{2} = - 0.125s, \text{ which, added to the origi-}$$

nal $-3.75s$, gives $-3.90s$, and the completed formula is: $-4.00s$
 $\ominus -1.25$ cyl. axis 175° , which combination gave great satisfaction.

These two cases sufficiently illustrate the method. But I would particularly commend its use in ametropic individuals who have high visual acuity and a small or moderate degree of such irregular astigmatism as is here described. High visual acuity means a demand on the part of the cerebral visual centers for very distinct retinal images, and a small error in refractive correction means partial relief only to much suffering in neurasthenic patients who have such visual acuity, and who must work much at the near.

The question naturally arises: Why not get the combination by placing the two cylinders in a trial frame and simply neutralizing them empirically? Because such neutralization is neither simple nor accurate, and often requires much labor. The beginning can, however, verify the result obtained by the method here described by means of the trial frame.

The same slate diagram may also be used to obtain the resultant prism of any combination of two prisms. Thus, a patient was most comfortable with a three prism base in, combined with one of two base down. Marking the point P at three on the horizontal diameter (Fig. 1), and P' on the vertical diameter at two, and describing the short arcs $p\ p$ and $p'\ p'$ with P and P', as centers respectively, we construct the rectangle D P E P', the diagonal D E of which indicates a prism of 3.5° apex 145° (base 325°).

It *may* be claimed that I have found these conditions of irregular astigmatism because I looked especially for them. But then, on the other hand, I *do* claim that others fail to find them when they exist, *because they do not look for them*, do not "stop" the dilated pupil, and do not use a sufficiently potent cycloplegic long enough to exclude astigmatic contraction of the ciliary muscle.

This paper is intended to be first of all practical, and mainly for those who have not looked into the mathematical principles and processes on which the method is based. I must take this opportunity, however, to urge those who have not, to look into the beautiful demonstrations in our ophthalmological treatises. A little trouble will richly reward them. For it is the *personal* analysis of these equations of Donders and others which leads us to the geometrical and graphic demonstration of one of the most beautiful applications of mathematics to practical and useful ends.

590 SUTTER STREET.



CASE OF TRAUMATIC PTOSIS OF THE LEFT EYE OPERATED UPON WITH MOST SATISFACTORY RESULT ACCORDING TO THE METHOD OF DR. GRUENING OR GILLET DE GRANDMONT.*

BY W. B. MARPLE, M. D.,
NEW YORK CITY.

(Illustrated.)

The result in this case was so satisfactory that it seems worthy of recording so as to make better known this most excellent method of dealing with these cases of ptosis.

The patient, R. B., a lad from Albany, N. Y., sixteen years of age, kindly referred to me by Dr. Walter B. James, of this city, gave the following history: Two years ago he pitched forward from a shelf and struck against a gas burner projecting from the wall, producing a bad laceration of his left upper lid. He says it required seventeen stitches to close the various rents in the lid at that time. Subsequently (February, 1901) considerable granulation tissue was removed from the inner surface of the lid.

He was first seen by myself the end of January of this year and his condition at that time was as follows: He has almost complete ptosis of the left eye, as is shown by the accompanying photograph. There is a good deal of fullness of the ptotic lid, which hangs in folds, and there are a number of irregular scars across it. When the lid is everted it is seen that the cartilage has been lacerated badly and to the nasal side there is no cartilage left at all. Measured by the method of Gillet de Grandmont (from lower border of upper lid in each eye to upper margin of eyebrow) the ptosis amounts to five or six mm., the nasal end of the lid drooping one to two mm. lower than the temporal, as is shown in the photograph: the palpebral fissure is only about one or two mm. broad in this eye. The absence of so much cartilage in the lid made it somewhat uncertain whether this form of operation would succeed or not, and a somewhat guarded prognosis was given, but the result could scarcely be improved.

Dr. Gruening very kindly consented to be present at the operation and I am greatly indebted to him for several suggestions made at the time.

The method employed was that described by Dr. Gruening at the last meeting of this Society. At his suggestion, one or two

*Read before the American Ophthalmological Society at Washington, May, 1903.

sutures were introduced through the upper part of what took the place of the cartilage, before the latter was incised, as it was thought possible that the upper part might retract out of sight. It showed no disposition to do this, however. There was dense fibrous or connective tissue filling in the parts formerly occupied by the cartilage which served the purpose of the latter. A strip of this three to four mm. broad was excised. Then a second piece two mm. broad was removed at the nasal end of the lid where the ptosis was most marked. I then introduced three black silk sutures as in the manner described by Dr. Gruening. The cutaneous wound was not closed.

The sutures were removed in four days, during which time there was some oedema of the lids and the line of incision hung down below the lid margin. But the oedema rapidly disappeared when the sutures were removed and the effect became daily more satisfactory. The patient left the hospital on the fifth day and returned to his home on the tenth day. He could close his eye readily.

Six weeks after the operation the photograph which is here shown was taken and sent to me. This will show the result much better than any description. An ordinary observer would scarcely notice that there was anything peculiar about the eye at all, and the contrast with his appearance before the operation is most striking.

As to the technique of the operation there does not seem to be any essential difference between that described by Gillet de Grandmont and that by Dr. Gruening. While the description of his operation by the former seems quite to warrant the statement of Dr. Gruening that "he does not confine his operation to the cartilage, as I did in my cases, but removes the upper edge of the tarsus together with as much of the tarso-orbital fascia and the levator muscle as he may find requisite," it is evident that at least in some cases Gillet de Grandmont must confine his incisions to the tarsus. His description of his first incision through the cartilage locates this "*parallèlement au bord libre de la paupière à une distance de deux à quatre mm. de ce bord.*" So that (although his subsequent language is ambiguous) unless the ptosis was of very high degree his second incision would be in the tarsal cartilage.

As to the method of introduction of the sutures, our French confrère closes the opening of the cartilage by direct sutures with catgut, not introducing any cutaneous sutures. Dr. Gruening uses a thread armed at each end with a needle, passing the needle through the orbito-tarsal fascia and then through the edge of the upper lid

behind the lashes, knotting them at the free edge of the lids. This latter method I employed in my case and the result was most satisfactory. But in the next case I have I shall try Gillet de Grandmont's method with catgut. It seems a priori that with this method of introducing the sutures there would be less tendency of the edges of the cartilages to override.

Another great advantage which the method possesses is the accuracy with which we can graduate the effect to be secured. In the case described above the ptosis was much more marked in the nasal half of the lid. Accordingly, after excising a piece of cartilage three to four mm. broad along the entire length of the lid, a second piece two mm. broad was excised along the nasal half of the lid, with the result that the ptosis was perfectly corrected and the border of the lid occupied the normal position.

Finally, the very slight reaction following the operation is one of its desirable features. What slight reaction there is disappears promptly when the sutures are removed on the third or fourth day.

As Gillet de Grandmont's article (*Recueil d'Ophthal.*, 1891, p. 267) may not be accessible to all the readers of the RECORD, it may be well to give briefly his description of the operation.

He uses a hard rubber speculum, bistoury, dissecting forceps, curved scissors and three curved needles with catgut 00.

1. Introduce Snellen's hard rubber clamp, make an incision through the skin $2\frac{1}{2}$ cm. long, parallel to the free border of the lid at a distance of three to four mm. from the latter.

2. Raise and dissect the two flaps and excise in the corresponding portion of the orbicularis, thus exposing the whole tarsal cartilage, almost from the ciliary border to and including the orbito-palpebral muscle of Sappey, vulgarly known as the tendon of the elevator.

3. Cut through the cartilage by an incision two cm. long parallel to the free border of the lid at a distance of two to four mm. from the latter.

4. Make a curvilinear incision (with the concavity downward) from one extremity to the other of the first incision through the cartilage entirely through the latter, so that when this portion of cartilage is removed the hard rubber speculum is seen through the opening. The breadth of this cartilage flap in the middle should equal the estimated amount of the ptosis. The breadth of the flap excised must be sufficient to correct the ptosis.

5. Suture with three points of catgut (No. 00) the upper edge

of the incision (or orbito-palpebral) to the lower edge or tarsal without touching the skin. The sutures are tied after the speculum is removed. It is not necessary to suture the skin, as the parts come at once into apposition.

The principal difference between the above operation and that of Dr. Gruening (for description of the latter see Transactions of the American Ophthalmological Society, Vol. IX, p. 574) is in the method of introducing the sutures, and this difference has been already explained.

35 WEST FIFTY-THIRD STREET.

PAPILLOMA OF THE CORNEA.

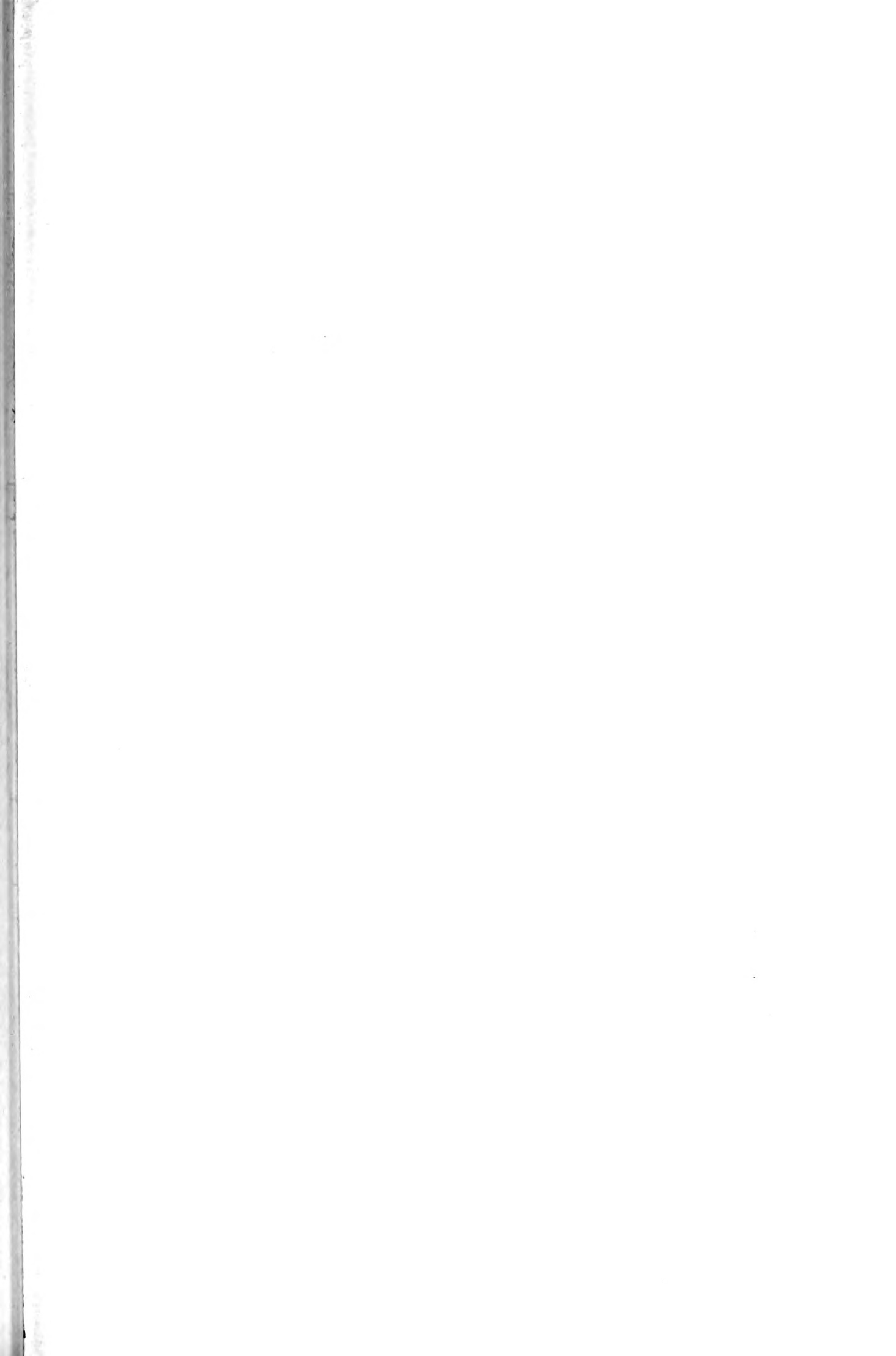
BY DAVID H. COOVER, M. D.,

DENVER, COLO.

Illustrated.

Mr. C. C. G., age 66 years, consulted me July 28, 1903. About a year ago had a supposed pterygium removed from the outer side of the eyeball. Eight months after its removal, patient noticed a small growth which seemed to originate from the cicatrix at the outer margin of the cornea, where the supposed pterygium had been removed, this former growth evidently being of the same nature as the present one, and grew rapidly until the tumor reached such a size that it projected over the lower lid. It was of a pinkish color, cauliflower or raspberry in appearance. The main body of the growth extended from the sclera corneal junction upward on the outer, lower and inner part of the cornea, invading almost one-half of it, where it was firmly attached. The growth encircled the cornea above and below, except for about 3 mm. on the inner and upper corneal margin. It invaded the cornea more than the conjunctiva and sprang from limbus. The base of the tumor was surrounded by injected blood vessels, which were very large. The tumor was made up of a cluster of soft papillæ; each papilla being movable and surrounded by a loop of vessels from which it seemed to spring. These loops of vessels were very noticeable also in the upper margin of the cornea where the growth was beginning.

The tumor measured 13 mm. across the base and 5 mm. across the part extending over the lower lid, and 10 mm. from base to apex.





Papilloma of the Cornea.

The eye was free from irritation except a slight discharge of mucus. The growth was thoroughly removed by forceps and scissors, after which a broad peritomy was done around the whole cornea, followed by a curetting of the cornea and sclera until every vestige of it had been removed, after which the parts were canterized with 25 per cent of nitric acid. There was considerable hemorrhage, especially at the corneal limbus. But slight reaction followed the operation. The denuded surface gradually covered with conjunctival epithelium. No ulceration of the cornea followed. The eye has fully recovered and there is no evidence of any recurrence, up to this time.

Dr. Wilder, of this city, examined the specimen and the following is his report:

"The following is the pathological report of the growth from cornea of Mr. G., presented by you for examination:

"The growth is a somewhat irregular, whitish mass, being 8 mm. in diameter and measuring $5\frac{1}{2}$ mm. from apex to base, where it was attached to the cornea. The tissue was hardened in alcohol. Embedded in celloidin and sections stained with plain haematoxylin and with haematoxylin and eosin.

"On microscopic examination, sections from different parts of the present growth present the same general appearance, viz., a very thick layer of squamous epithelium of irregular outline, beneath which are papillae of delicate connective tissue. The epithelial layer occupies over one-half of the sections in depth and about the same proportion laterally. The external layers of cells are large, many of them elongated, and although some have evidently undergone keratine degeneration, most of them have deeply staining nuclei.

"Underneath the external layers the cells assume different shapes, some being ovoid, some round, fusiform and polyhedral in shape, but all being large cell bodies and deeply staining nuclei. A distinct line of demarkation is seen between the epithelium and the underlying connective tissue, there being no tendency on the part of the epithelium to invade the surrounding tissue. The papillae consist of delicate connective tissue fibers and support a moderate number of small blood vessels with apparently normal walls. A moderate amount of blood has infiltrated the base of the neoplasm. I find no evidence of ulceration.

"Diagnosis, papilloma."

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XII.

CHICAGO, OCTOBER, 1903. No. 10, NEW SERIES

EDITORIAL.

CONSERVATISM.

Some one has said that conservatism is like a brake to a wagon; it is of use in going down hill, but has little value in the upward climb. We believe, however, that in the practice of medicine this assertion must be in part disclaimed. Conservatism is rather to be honored in the observance than in the breach. With our ophthalmic reports so full and our medical gatherings so well attended, it is perfectly natural for each aspirant for honor to feel that anything he may say must, in order to command attention, be either original or in some way unique. He alights upon something new, but, for fear that some one else may have made the same discovery and be the first to make it public, he hurries in his report prematurely. Statements are made that can not be verified, and, while he may be perfectly assured of the truthfulness of his own position, he fails, because of his lack of proof, in his efforts to convince others. The result is to be expected. His advice has been so unreliable that he has ceased to be listened to. From becoming discouraged at his own failures he soon discredits the utterances of older and more experienced men, and finally gives up reading or writing or attending the society meetings. In a few years he is a back number. It is a deplorable fact that the foregoing is not an isolated instance. There are many young men who realize too late that they have sacrificed their chances of high estate to an overpowering ambition to rise quickly. Had they been a little more conservative they would, more slowly, perhaps, but likewise more surely, have reached the goal sought, and would have proven valuable men in our profession.

MELVILLE BLACK.

REPORTS OF SOCIETIES.

The regular monthly meeting of the San Francisco Society of Eye, Ear, Nose and Throat Surgeons was held on May 21, 1903, the president, Dr. Louis C. Deane in the chair.

Dr. Payne read a paper on "*The Advantages of Mule's Operation Over Simple Enucleation.*"

The president objected to the use of the term "simple technique" to cover a large number of interesting facts. He should be pleased to have him go more fully into the subject.

Dr. Payne means by simple technique that the operation is to be done with the least possible traumatism. To accomplish this one desirable step in the operation is to keep the eye-ball in position by using a long steel pin to transfix the sclera just behind the limbus, one pin above and one below. He finds the cataract blade best for beginning the amputation of the cornea and a small scissors to complete it, the incision made at the limbus. The sclera is emptied with as little violence as possible. By introducing a probe upon the end of which a cotton ball is rolled loosely one engages all the inter-ocular structures by twisting it around. This torsion empties the sclera completely, unless there has been extensive inter-ocular inflammation, in which case some exudate may be adherent to the sclera requiring gentle curettage. Hot bi-chloride solution 1 to 6,000 is sufficient to arrest hemorrhage and sterilize the field.

The glass ball is cleansed with alcohol and left standing in 1 to 3,000 bi-chloride before use. Sometimes the cornea is small and its amputation leaves an opening not large enough to introduce a ball. Here a nick with the scissors on the side admits the ball readily. Careful approximation of the cut edges of the sclera and conjunctiva with silk, is all that is necessary. The sclera heals slowly and requires silk. He allows the sutures to remain ten days and usually find most of them cut out by that time. He thinks it is a mistake to imbed catgut sutures to bring the scleral wound together, and then the conjunctiva over them. They are sometimes not completely absorbed and leave an irritable point in the stump. There should be no tension across the glass ball, and still the sclera should be sufficiently filled to keep its form.

An important point is to prepare for the reaction which follows these operations, which is very great if much violence is used. The lids are carefully replaced over the stump and the orbital opening

carefully filled in all around with a cushion of absorbent cotton which is held in place by a snug bandage. In the first twenty-four hours there will probably be some pain. It is usually relieved with one hypo. The bandage is not removed until the fourth or fifth day if things go well. The patient can leave the hospital at the end of a week and at the end of two weeks the case is in a very good condition, though not ready yet for the shell.

Dr. Pischel has performed Mule's operation only a few times, with good success. But he is always somewhat afraid of sympathetic inflammation.

Regarding the appearance the hollow artificial eyes if well made fulfill all reasonable demands.

He would like to have it explained why the orbit of a child should develop when a glass ball is worn and vice versa.

Dr. Eaton mentioned the use of paraffin injected into the capsule of Tenon as a substitute for evisceration of the globe.

Dr. Wiborn has seen eighteen or twenty cases. There were three failures, one excessive reaction from carbolic acid caused the ball to come out, another the globe was a little too large and broke the stitches, and came out. In the third the stitches did not hold and the wound gaped the least bit and so for about eight months caused the globe to look very much like a dilated pupil. The other cases were very satisfactory giving unusually free movement and nice appearance. Of course favorable cases were selected for the tests. Reaction is very violent when carbolic acid is used even when alcohol follows—and ice is necessary for forty-eight hours or so.

Dr. Nagel's experience has been with a modification of Mule's operation. He uses a silver wire ball instead of the glass ball and has never had one come out. One of the points in the operation is not to get too large a ball. He has a very favorable opinion of the operation.

Dr. Deane: Much has been said against the Mules operation but it should rank as one of the classic operations when performed in selected cases. At this evening's meeting thirty-five cases have been reported by several of our members and out of that number only four cases were considered failures. The satisfactory results that some of our members have had is most eloquent in its plea for the operation, more so than the scattered reports we gather from various countries and journals.

Dr. Payne: In the cases selected by Dr. Payne for the operation there was practically no danger of a sympathetic ophthalmitis. All

these cases reported were successful and not one has had any trouble with the stump. So far as he can gather Mules' operation has not been followed any more often by sympathetic trouble than has enucleation, and he thinks it is our duty to make an effort to get the best possible cosmetic effect for the patient without endangering the other eye. This we can do with the Mules operation by using care in selecting our cases.

Dr. Eaton remarked that the reports on the Mules operation from various parts of the globe have been antagonistic and the general mass of evidence against it, etc.

Dr. Payne: Dr. Eaton has quoted what the vast experience of oculists has been. The reports of isolated cases have been unsatisfactory, many oculists abandoning and condemning the operation after an experience of two or three cases. Dr. Wiborn reports twenty cases with three failures. Two of these were improperly selected for the operation. With care in selecting cases and with greater care in technique our results will be as good as in simple enucleation and a better cosmetic effect obtained.

Mules' operation is for selected cases and has certain contraindications. The cases mentioned by Dr. Frederick plainly indicate enucleation and should not have been selected for the Mules operation.

CORRESPONDENCE.

THE TERMS ANTIMETROPIA, ANISOMETROPIA AND BRACHYMETROPIA.

Editor The Ophthalmic Record:

Dear Sir: The writer is much interested in the paper of Dr. Suker in your issue of August touching the terms "antimetropia," "anisometropia," etc. There are many terms used in ophthalmology that ought to be eliminated, and amongst the foremost stands the term "antimetropia." As long ago as 1888 the writer in a monogram entitled "The Theory and Practice of the Ophthalmoscope, a Hand-Book for Students," published by Geo. S. Davis, Detroit, Mich., said: "Anisometropia in the general acceptance of the term is the condition in which the refraction of the two eyes is different in any manner. From the etymology of the word, however, we are inclined to agree with Dr. Noyes who thinks that this term should be used only when the two eyes have the same quality of refraction and differ only in degree, i. e., both having H. or M. with more H. or M. in one than the other. Instead of the term anisometropia to signify that the refraction of the two eyes is *simply different*, we would suggest the word *heterometropia*." (Loc. Cit., p. 27.)

Dr. Suker in the course of his remarks while discussing anisometropia observes: "However, if we desire a perfect opposite for anisometropia the term heterometropia may be substituted for anisometropia." He goes further to show that the prefix *hetero* signifies a *difference* while *anti* does not.

In the writer's monogram referred to above in a foot note, on page 27, will be found the following:

ἕτερος in composition signifies "other," "different"; this word seems to us to exactly express the meaning intended. Instead of anisometropia Noyes suggested the word antimetropia. The Greek prefix *anti* signifies in composition opposition, not *oppositeness*."

Dr. Suker does not refer to the writer's observations on this point in his discussion and, of course, was unaware of them. The writer ventures to predict that Dr. Suker will give him precedence in this matter.

For eight years at the New York Polyclinic and for thirteen years in Columbia University, the writer taught the correctness of

this term *heterometropia* and the incorrectness of the term *antimetropia*.

There are seven meanings given to the prefix *ἀντι* in composition and none of them indicate *oppositeness* or *difference*.

Noyes obviously committed an etymological crime when he coined that word and he is the author of much confusion thereby. He failed utterly to recognize the value of *opposition* as opposed to *oppositeness* or *difference*. It seems to me, Mr. Editor, that the term *antimetropia* should be eliminated from ophthalmological terminology.

If it be eliminated, all reasonable men can be brought to agree as to the true meaning of anisometropia. The writer heartily agrees that the term *heterometropia* should be used when the two eyes differ in the *quality* of their refraction. And the term anisometropia can only be used to indicate the condition in which there is the same quality of refraction in the two eyes with a difference in degree.

The writer is also much interested in the remarks of Dr. Saker on *emmetropia*, *hypometropia*, etc.

Donders' definition of emmetropia is eminently satisfactory if the derivation of the word taken literally. If the *-opia* of emmetropia be considered, to be derived from $\acute{\omega}\psi-\acute{\omega}\pi-os$ then the word means—within the measure of the (normal) eye. If this be accepted, the word hypermetropia is indeed bad, since translated it implies $\acute{\upsilon}\pi\epsilon\rho$ (over or beyond) $\mu\acute{\epsilon}\tau\rho\omicron\nu$ (measure) $\acute{\omega}\psi$ (of the normal eye). Now it is painfully obvious that this is not what this condition of hypermetropia is. The measure of the hypermetropic eye is less than that of the emmetropic eye. The word myopia is surely bad, since it describes the final expression of the person who possesses the condition. And worse still, it is not wholly characteristic of myopes. The squeezing of the eyelids together for the purpose of lessening the size of the circles of diffusion in the retina is often practiced by old hypermetropes or young people with excessive hypermetropia, neither of whom are able to overcome the circles on their retinas by means of the accommodation. It is regrettable that this word was ever used. The word brachymetropia, while a good translation for the condition of near-sightedness, is indefensible on the basis of the literal meaning of emmetropia as accepted above. Brachymetropia means, *short measure eye*, whereas as a matter of fact, the near sighted eye has the long measure; it is surely longer than the emmetropic eye. On these lines, then, emmetropia is a perfect word; hypermetropia, myopia and brachymetropia are bad.

But there is another way of looking at the word emmetropia:

Suppose it to mean, within the measure of *vision*. To say that the emmetropic eye is an eye which has the normal vision would be wrong, for while it generally does, it may have more or less. It is possible for a blind eye to be emmetropic, and it is also possible for it to have double quantity of vision, 20-10, for example. On these lines emmetropia will not stand criticism. But if this be accepted as a proposition, then the word hypermetropia is fairly good, for it means *over* the *measure* of *vision*, for which *far sight* is an excellent translation.

For the far sighted eye, on account of its shortness, can recognize a smaller visual angle than the emmetropic eye, but not necessarily, since there may be a diminution in the visual acuity. As descriptive of the visual acuity, the word brachymetropia is simply beyond criticism—it means short measure of vision, short-sight. Myopia has already, for many good reasons, been set aside, and is not entitled to consideration even on the above lines. The fact is, the only true definition of refractive conditions is based on the refractive power or the medium concerned. Donders' definition for emmetropia is the only correct one—a refractive condition of the eye in which parallel incident rays of light unite on its layer of rods and cones while the eye is in a state of rest. On this assumption *hypermetropia* can not stand. There is nothing in the word to indicate the fact that parallel rays unite *behind* the layer of rods and cones. It does have some significance, however, if the far point be regarded. The far point of the emmetropic lies at infinity, because rays emerge from it parallel. The far point of the hypermetropic eye must be beyond infinity, since the rays emerge from it in *divergence*, owing to the existence of the retina *within* the principal focus of the eye. The prefix *hyper* finds in these facts some excuse for its existence. But the *far point* is not the direct basis of Donders' definition, though, of course, it is implied indirectly. The term hypermetropia should be let alone: "custom and wont" have sanctioned its use, even if it is not absolutely accurate. Of the two terms, myopia and brachymetropia, the latter is better, because it is an accurate translation, while the former is essentially bad for the reasons outlined above. But, as has been shown, brachymetropia is not for one moment permissible on the basis of Donders' definition of emmetropia.

Dr. Suker has suggested the word *hypometropia* instead of myopia and brachymetropia. He quotes Donders, who suggested brachymetropia because it conveyed the opposite meaning to hypermetropia.

Granting the existence of the word hypermetropia, it would at the first glance appear that hypo-metropia would be its very antithesis, and on the basis of Dr. Suter's reasoning so it would.

But the writer can not accept the term hypermetropia as indicating "a condition of refraction wherein the focus of entering rays of light, in an eye at rest, is *beyond* (italics writer's) the measure or standard of the eye, as compared with one that is emmetropic." So far from the focus in the hypermetropic eye being beyond the measure or standard or that of the emmetropic eye, it appears to the writer that it falls short of it.

What is more the focus of the emmetropic eye is a positive one, thrown on a screen, the retina while the image of the hypermetropic eye is virtually a negative one. The farsighted eye falls distinctly short of the measure of the emmetropic eye, and if there is a reason for the use of the word hypo-metropia, it should certainly be used instead of hypermetropia. The preposition hypo, in composition means below, less or underneath, and hence, to the writer's mind, conveys the idea ordinarily and customarily conveyed by the term hypermetropia.

Hypometropia, on the basis of the Donders' definition of emmetropia, can not be used to mean nearsightedness, but should rather be used to indicate farsightedness.

Per contra, hyper-metropia on the same basis could readily be used to describe nearsightedness. The writer can not accept the term hypo-metropia as a substitute for the ordinary terms expressive of nearsightedness.

The writer agrees that the word μέτρον should occur in the three terms under discussion. It is a sound suggestion, and puts the terms on the same etymological basis. But it is necessary to be practical after all.

The terms emmetropia, hypermetropia and myopia have been long in use and it is not probable that they will ever be modified. Myopia is a shorter and more euphonious word than brachymetropia, and the writer ventures to predict it will continue in use when brachymetropia has been forgotten. The writer could only regard it as unfortunate if the word hypo-metropia should ever be used to indicate nearsightedness. It is safe to predict it never will.

While the writer accepts the word emmetropia as defined by Donders, unqualifiedly he can not agree that the word ametropia accurately expresses the absence of emmetropia. Literally translated the word means ἀ πρὶν = not, μέτρον, measure, ὠψ, eye. But the thing that

is to be indicated in any word which is intended to convey the meaning of absence of emetropia is the negation of the idea *within*, conveyed by 'εν in conjunction with metropia. The only word that could convey the meaning beyond peradventure would be *anemetropia à priori* = not, 'εν. within, μετρον, ωψ, not within the standard or measure of the proper eye. The word ametropia negatives the idea of metropia, but not emmetropia.

If *metropia* be accepted as standard, then ametropia is correct, but if emmetropia be accepted, anemetropia alone is possible.

J. H. CLAIBORNE, M. D.,
39 W. Thirty-sixth Street, New York City.

EXAMINATION OF THE EYES AND EARS OF SCHOOL CHILDREN.

October 5, 1903.

TO THE EDITOR OF OPHTHALMIC RECORD:

Dear Sir—Since the last meeting of the American Medical Association, many medical societies, boards of health, and boards of education have adopted the resolutions passed by the Ophthalmological Section and the House of Delegates of the American Medical Association concerning the annual examination of school children's eyes and ears by school teachers. The resolutions were as follows:

"Whereas, The value of perfect sight and hearing is not fully appreciated by educators, and neglect of the delicate organs of vision and hearing often leads to disease of these structures, therefore, be it

"Resolved, That it is the sense of the American Medical Association that measures be taken by boards of health, boards of education and school authorities, and, where possible, legislation be secured, looking to the examination of the eyes and ears of all school children, that disease in its incipency may be discovered and corrected."

The undersigned is collecting data on this subject, and would be obliged if physicians would kindly write and notify him wherever and whenever such action is taken in the various portions of the country. He would also be obliged for any other information on the subject.

FRANK ALLPORT,
92 State street, Chicago, Ill.

ABSTRACTS FROM RECENT OPHTHALMIC LITERATURE.

EDWARD A. SHUMWAY, M. D.,

PHILADELPHIA.

Experimental Investigations on the Healing Process in Perforating Cuts of the Cornea.—As the result of experiments upon rabbits, A. Weinstein (*Archiv. f. Augenheilk.*, July, 1903) reaches the following conclusions:

After perforating cuts of the cornea the regeneration of the individual layers is not simultaneous, but commences first in the epithelium, then in the substantia propria, and finally in Descemet's membrane. The regeneration of the epithelium is brought about exclusively by an active proliferating process, which is shown by the presence of karyokinetic figures in the entire epithelial layer. This commences first at a distance from the wound, immediately after the experiment, reaches its culmination after three or four hours and decreases at the end of the first day. There is no reason to assume an amoeboid motion of the epithelial cells toward the wound (Nussbaum, Peters), nor does anything indicate the possibility of *direct* division of the epithelial cells. As the substantia propria is regenerated, the epithelium which has penetrated into the cornea is gradually extruded, and a portion of the cells is killed by a process which is as yet unexplained. The epithelium in the vicinity of the wound remains thicker than normal, both as a result of the increased number of the middle cells and of the increased length of the basal cells. This is a favorable circumstance, as it partially compensates for the unavoidable disturbance of the corneal curvature, as a result of the shrinking of the scar. Aseptic, uncomplicated, central wounds of the cornea (at least in rabbits) heal without inflammatory reaction; there are no opacities, development of blood vessels or irritative phenomena.

The regeneration of the substantia propria is produced by the active proliferation of its own elements exclusively. Leucocytes, apparently, take no part in the process. Mitosis appears, at a distance from the wound, within four to six hours after the operation, is uncertain and unimportant. The true repair does not begin in the substantia propria, near the wound, until two days later, and the first appearance of granulation tissue in the wound occurs at the end of three days, increasing rapidly by indirect division. The anterior half of the wound is filled up first, and the mass of fibrin which closes the wound first seems to play a passive role in the process of repair.

The regeneration of the endothelium occurs at the same time as that of the substantia propria, and is effected by mitosis. Descemet's membrane is fully restored, although this is completed at a much later period. It commences in four weeks, in rabbits, and in four months the membrane reaches its normal thickness. The newly formed membrane can not be distinguished either by appearance or staining qualities from the old. The cuticular theory of the formation of Descemet's membrane is a pure assumption which we have inherited. No one has brought really convincing proof of it, while anatomical and embryological facts are against it. Descemet's membrane is a product of the physiological hyalinization of the boundary layers of the substantia propria: this process is probably brought about by the action of the aqueous on these layers. Anatomical and embryological facts speak in favor of this theory, as well as the observations upon its formation in pathological conditions.

The Use and Therapeutic Action of Subconjunctival Injections of Sodium Iodate in External and Internal Diseases of the Eye.—

Schiele (*Archiv. f. Augenheilk.*, July, 1903) has used solutions of sodium iodate for subconjunctival injections during the past three years. This salt of iodic acid was first introduced by Ruhemann in 1894. It is a white, odorless, crystalline substance, of neutral reaction, which is soluble in ten parts of water, but insoluble in ether, glycerin and alcohol. Fifteen-twenty per cent solutions will precipitate the crystals, but they become clear on heating. The solutions used for injection were almost exclusively 0.1 per cent in strength (not boiled, but frequently renewed) to which from one to three drops of a 1 per cent solution of acoin were added for each syringeful, in order to make the injections painless. The conjunctiva was first made anesthetic by instillation of cocain, or cocain and atropin. Pain after the injections was either very slight or entirely absent. No oedema of the conjunctiva or swelling of the eyelids was seen in any case. As a rule the injections were made far back from the cornea as Darier recommends, as he considers this an important point, and care was taken, by the use of a loupe, to avoid injuring any of the large conjunctival vessels. No adhesions between the conjunctiva and sclera, or necrosis of the tissue were observed. These injections of a full syringe of 1-1000 sodium iodate solutions were repeated not oftener than every three or four days and were used in iritis, cyclitis, keratitis, secondary glaucoma, and panophthalmitis, with very marked relief of pain. The pain was decidedly diminished within a few hours, and either dis-

appeared entirely or was very slight afterward. In addition to its analgesic effect, the drug seemed to have a direct influence upon the morbid process, which could be ascribed to the action of the nascent iodine in the tissues set free by the action of *rhodan*. Rhodan has been found in the nasal and conjunctival secretions, in the aqueous humor, and in the blood, and has this power of splitting up iodine compounds. In all forms of iritis, whether rheumatic or syphilitic, good results were obtained, both in the acute stages and in chronic conditions. Contrary to Darier's belief, he found no contraindication to the injections even in the most violent cases of iritis. In acute and chronic cyclitis, choroiditis, and inflammatory conditions of the cornea, there was marked improvement. The iodate was found to be a much more active preparation than the iodide. It acts (1) as an *indirect lymphagogue* by dilatation of the blood vessels of the eye; (2) as an *indirect antiseptic* by dilating the blood vessels and causing an increased quantity of blood to enter the eye; (3) as a *direct antiseptic* as the "free iodine prevents infection of a wound, gets rid of any infection already present, retards the active escape of the white corpuscles by paralysis of their protoplasm, allows the formation of healthy granulation tissue by preventing decomposition, and quiets the exposed nerve filaments by direct paralysis of their axis cylinders"; (4) as a *specific in syphilitic and rheumatic diseases of the eye*; (5) as an analgesic in the highest sense of the term.

Acoïn-cocaine Anesthesia.—W. Krauss (*Münch. Med. Wochenschr.*, 1903, 34) has used the following solution for local anesthesia in the Marburg clinic, for the past two years:

Acoïn	0.025
Cocaine	0.05
Sol. sod. chlor. 0.5 per cent, ad.....	5.0

As the mixture readily decomposes and loses its effect, it must be made every three or four days. It is injected subcutaneously or subconjunctivally in three or four places about the seat of operation, about 0.2 cc. being used for each point. The anesthesia is usually sufficiently complete, even in very sensitive patients, and does not produce much swelling of the tissues. The effect is almost instantaneous, so that operations may be started very soon after the injection. No decided delay in the healing process has been noted. It has been employed successfully (1) in enucleations, where narcosis is impossible. Usually the injection of a syringe-ful around the attachments of the rectus muscles is sufficient, although morphine should be given before the

operation, to prevent the momentary pain experienced in cutting the optic nerve. In a number of cases in which the method was tried no bad effects were seen. (2) In strabismus operations in children, or very sensitive adults. (3) In operations upon the conjunctiva of the eyeball and eyelids, such as the removal of chalazia, etc., and to prevent the pain of subconjunctival injections of salt. Also in the otherwise very painful rolling operation for trachoma. In this case it is injected beneath the conjunctiva, near the fornix, and about one and one-half syringe-fuls are required for the two eyes. (4) In operations on the skin surfaces of the eyelids—transplantation of the cilia, ptosis operations, extirpation of growths, etc. (5) In operations on the lachrymal apparatus—removal of the lachrymal gland and sac. In the latter, in addition to the subcutaneous injection, a deeper one is made between the medial wall of the sac and the periosteum. In this way not only the skin incision and removal of the sac from its bed are borne without especial pain, but the curetting out of narcotic pieces of bone, which is occasionally necessary, is made endurable. The effect can be increased by sponging the wound with cotton dipped in cocaine solution. (6) In occasional operations in the vicinity of the eyeball—such as the removal of extensive dermoid cysts.

Cysticercus.—Wagenmann has reported a case of successful operation on an intra-ocular cysticercus (Ref. in *Wochenschr. f. Therapie u. Hygiene des Auges*, September 17, 1903). The condition was at first considered to be tubercular, but more careful examination showed the grayish green reflex in the vitreous to be a cysticercus bladder, which made active undulating movements. It measured 8-10 disc diameters, and was situated about 6 d.d. below the papilla. The operation was done under cocaine anaesthesia. A large conjunctival flap was made below, and the rectus inferior removed, except for a small band, so that the eye could be turned upward. A large meridional incision was then made in the sclera as far back as possible, but on opening the wound the bladder did not present. Examination with the ophthalmoscope showed that it had slipped upward. Forceps were introduced through the wound and their movements directed by the use of the ophthalmoscope, held in the other hand. After several attempts the bladder was caught and withdrawn through the wound. Very little vitreous was lost, the scleral wound was sutured, the rectus muscle reattached, and the patient made an uneventful recovery.

Eumydrin.—Willy Erbe (*Woch. f. Ther. u. Hygiene des Auges*, September 17, 1903) describes a new substitute for atropine, the nitric acid salt of the methyl ammonium base of atropine, designated

eumydrin by the Farbenfabrik vorm. Friedr. Bayer & Co. in Elberfeld. According to the pharmacological investigations of Professor Dresser, the action upon the central nervous system is suppressed, while its so-called peripheral action (on the accommodative apparatus of the eye, the inhibitory apparatus of the heart, the endings of the secretory nerves of all true glands, and the motor nerve endings in organs with involuntary muscle tissue, as in the intestine and bronchi) is preserved. According to Dresser's calculations, it is about fifty times less dangerous for man than atropine sulphate. Erbe found that it was a good substitute for atropine in the night sweats of consumptives, especially when combined with aspirin; doses as large as 0.001 may be given internally.

The Causes of Blindness in Egypt.—Alfred Osbourne (*Archiv. f. Augenheilk.*, June, 1903) enumerates the causes of blindness in Egypt from records of 500 clinical patients as follows: Acute purulent conjunctivitis, 38 per cent; glaucoma, 29.8; trachoma, 11.8; trauma and sympathetic ophthalmia, 1.6; atrophy of the optic nerve, 3.8; ulcer of cornea, 3.6; variola, 3.6; complicated cataract, 1.6; unsuccessful operations, 1.0; detachment of retina, 0.8; measles, 0.4; other conditions, 1.0. The first three causes—acute conjunctivitis, glaucoma and trachoma make up 80 per cent of the total number. No attempt was made to separate the cases of ophthalmia neonatorum from other forms of purulent conjunctivitis. Osbourne found that it occupied a subordinate position among the purulent conditions of the conjunctiva, even in the early years of life, while that due to the Koch-Weeks' bacillus was more frequent. Over one-half (53.7 per cent) of all the cases of purulent conjunctivitis occur in the first decade, and 40 per cent of these in the first year. The chief cause of this condition lies in the filth and absence of rational care in which the infants are reared. Among the Arabian mothers it is considered dangerous to wash the head of a child before the end of the first year. The high percentage of cases blind as the result of glaucoma is remarkable, both of the primary and secondary forms. Osbourne thinks that there may be some connection between it and trichiasis, due to trachoma, as in 17 per cent of the cases of glaucoma the mal-position of the cilia was present. The percentage ascribed to trachoma—11.8 per cent—is rather under what has been usually given. This is largely due to a difference in diagnosis of the condition. In former years trachoma was considered as a chronic blenorrhoea, and all cases of acute purulent conjunctivitis, with granular changes, were defined as acute trachoma. Since the bacteriological investigations of later

years, this nomenclature has been dropped and the purulent catarrhs are now considered as coincidental affections, many physicians following Morax's dictum that "acute trachoma does not exist in Egypt any more than in Europe, and the cases of so-called acute trachoma are nothing else than acute contagious (Koch-Weeks) or blenorrhœal conjunctivitis, which are superadded to conjunctivitis granulosa."

NOTES AND NEWS.

ITEMS FOR THIS DEPARTMENT SHOULD BE SENT TO
DR. BROWN PUSEY, 31 WASHINGTON ST., CHICAGO.

Dr. Charles A. Oliver has just returned home from a three weeks' trip abroad.

Under the will of Mr. Richard Hawkins, of Dublin, Ireland, the Royal Victoria Hospital of that city is bequeathed \$10,000.

Dr. Warwick M. Cowgill has changed his residence from Paducah, Ky., to Lincoln, Neb., where he will have his office at 1315 O street.

Dr. E. A. Shumway has been appointed ophthalmologist to the Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis.

In New York City the board of health has arranged to have the eyes of children who are employed in the department stores and other shops inspected.

Drs. E. A. Shumway, J. C. Knipe, W. M. Sweet and A. R. Renninger have been appointed assistant ophthalmologists to the Philadelphia Hospital.

Fifty thousand dollars has been given to the Newark Charitable Eye and Ear Infirmary by a benefactor who refuses to allow his name to be made public.

Dr. George F. Keiper, Lafayette, Ind., has been elected a delegate to the general conference of the Methodist Episcopal Church, which meets at Los Angeles, Cal., next May.

The Episcopal Eye, Ear and Throat Hospital, of Washington, D. C., has received a bequest of \$5,000 by the will of Anna M. Mansfield for the purpose of maintaining a bed in the hospital.

A new building to cost \$50,000 will be ready next year for the Newark Charitable Eye and Ear Infirmary. The building is to be

fireproof, will accommodate thirty in-patients and an unlimited number of dispensary cases.

Recently in a successful effort to rescue a companion, Dr. J. L. Borsch, of Philadelphia, fell two hundred feet over a precipice on Mt. Eiger, Switzerland. Most fortunately, Dr. Borsch escaped injury, as he landed in a huge snowdrift.

On account of the great prevalence of trachoma in New York City the board of health has determined to establish a hospital for its exclusive treatment. It has been found that the majority of cases are among the public school children, 19 per cent. of the children being affected.

In his article, "Recent Advancement in the Therapeutics of the Eye" (*Medical News*, October 10, 1903), Week says: "At the New York Eye and Ear Infirmary, where argyrol is employed to a large extent, it is used in a solution of 30 per cent. every two hours in severe cases of gonorrhoeal ophthalmia and less frequently in mild cases and when the disease is subsiding. Ophthalmia neonatorum requires seldom more than seven days in the hospital when treated with argyrol."

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

CHICAGO, NOVEMBER, 1903.

VOLUME XII. NO. 11. NEW SERIES

ORIGINAL ARTICLES.

A NEW ADVANCEMENT OPERATION.

BY G. C. SAVAGE, M. D.,
NASHVILLE, TENN.

The risk attending advancement operations led me, in 1893, to devise the operation of "muscle-shortening" or "muscle-tucking," an operation that has been generally adopted. It has been claimed, occasionally, by others, in words like these: "For the method of doing *my operation* see vol.— p— of —" some journal; when the writer would have done himself greater credit by saying: "For the method of using *my instrument* in folding the muscle in the muscle-tucking operations see vol. — no. — of —" some Journal.

Since there are many cases in which the full effect desired can not be accomplished by the muscle tucking or shortening, although an ideal operation, an advancement must occasionally be done. I am sure that I have now devised the ideal advancement operation. This operation is done without cutting the tendon, and therein lies my claim. I may also base my claim in part on the method of taking the scleral stitches. The following are the steps of the operation which requires only a local anesthetic:

(1) Make a cut through the conjunctiva parallel with the plane of the equator, a short distance behind the insertion of the tendon. This cut should not include the capsule of Tenon.

(2) An opening should be made through the capsule of Tenon just below the border of the tendon, through which should be passed, beneath the tendon, a large strabismus hook. When the point of this hook reaches the structures above the tendon a snip should be made in the capsule so as to allow it to emerge. In this way the hook is given a better hold beneath the tendon.

(3) The tendon is now lifted by the hook so as to make the taking of the stitch through the muscle and capsule easy, without

risk of dipping the needle into scleral structure. The stitch is taken as in plain sewing and the puncture and counter-puncture should be one-eighth to three-sixteenths of an inch apart. In taking this stitch the conjunctiva is held back by means of forceps in the hands of an assistant. The loop, consisting of the middle of the suture which is armed with two needles, is beneath the central part of the muscle, at just that distance behind the tendonous insertion indicated by the judgment of the operator.

(4) The forceps and hook having been removed, the operator, taking the fixation forceps in his own hand, seizes the tendon at its insertion that he may hold the eye steady while passing the two needles into the scleral tissue, the anterior conjunctival flap being held forward by the assistant. Either the upper or lower needle may be passed first, and the points of passing these are chosen with the view of not changing the plane of action of the muscle, there being no cyclophoria, or of changing this plane when there is cyclophoria. In the former case the one needle is passed just as far below the plane of the horizontal meridian as the other is to be passed above this plane. The lower needle should be held parallel with the plane of the equator and well behind the canal of Schlemm. The puncture made below, and the counter-puncture made above, should include only a narrow band of scleral fibers, and the dip of the needle into the sclera should not be too deep. A similar vertical stitch above the horizontal plane should be taken with the other needle. The space between the two vertical stitches should be as broad as the stitch previously taken in the muscle, and the one scleral stitch should be as far below the horizontal plane as the other is above this plane. After the scleral stitches have been taken the two needles should be passed through the anterior conjunctival flap.

(5) The last step of the operation is the tying of the suture. This I always do over the silver suture plate devised by Dr. G. H. Price, of Nashville. The two needles having been passed through the two holes in the suture plate are now removed and the surgeon's knot is tied, but not until that part of the muscle through which the loop was passed has been drawn as far forward as necessary, usually up to the scleral stitches. Since this part of the muscle can not be drawn a greater distance in advance of the insertion of the tendon, than the distance between the loop of the suture and the insertion of the tendon, it becomes evident that the muscle stitch should be the same distance behind the insertion of the tendon as the

scleral stitches are in front of it. The folded muscle and tendon lie flat and the posterior conjunctival flap is drawn forward nicely.

If this safe and easy advancement operation has been previously described by any one, at home or abroad, I shall be only too glad to surrender my claim to him. I have not seen such a description.

· EPISCLERITIS.

BY DON M. CAMPBELL, M. D., L. B. C. S., EDIN.,

DETROIT, MICH.

Episcleritis is a term which has been applied to a group of diseases which are of quite frequent occurrence and of great importance in as much as many of the cases run a long, intractable and extremely destructive course eventuating in much loss of time and effort on the part of the sufferer and all too often terminating in more or less loss of functional activity in the affected eye.

The term is one which is etymologically misleading. Episcleritis signifies an inflammation above the sclera and presumably below the conjunctiva that is involving the episcleral tissue, which is a thin layer of reticular tissue joining the sclera to the conjunctiva.

When, however, one comes to briefly sketch the pathology of the various lesions grouped under this term one will immediately see that the term episcleritis is not only insufficient but that it is positively misleading; that it is, in short, a term which has by usage, or rather by insufficient detail in classification, been made to do duty for various lesions which are pathologically quite divergent and that they manifest a wide variety of clinical manifestation. Should we not attempt, in the interest of a more scientific nomenclature, a better pathology and a more efficient therapy—a better, broader and more comprehensive classification?

It has occurred to the writer that a classification based on a clinical manifestation backed up by anatomic distribution and confirmed by pathologic findings would be a great step in advance and perhaps eventuate in our being able to do more for these deplorable cases.

CLASSIFICATION.

I would suggest the following brief classification as a working basis. I must say, however, that it is based largely on what I have clinically observed of these cases:

1. *Acute Episcleritis*.—Which is meant to include all those cases

which are characterized by an acute inflammatory action involving the episcleral tissue. This will be found to be clinically a very distinct type of inflammation well differentiated by clinical signs and symptoms, anatomically sharply defined and pathologically capable of easy distinction from other processes going on in its vicinity.

2. *Acute Scleritis*.—Which is designed to cover those cases of inflammation of the whole or more frequently sections of the sclerotic coat. The group is also clinically, anatomically and pathologically clearly differentiated, especially so from acute episcleritis, from which it is clinically widely separated.

I have never known an acute episcleritis to be complicated by an acute scleritis.

3. *Chronic Scleritis*.—By this term is meant that class of long-continued, low-grade inflammatory actions in the sclerotic coat which have gradually brought about a thinning by absorption of that coat, allowing the dark choroid to show through or, in still more advanced conditions, permitting the formation of anterior staphyloma.

This form of the pathological process is, of course, the ultimate conclusion of the same process which begins as an acute scleritis.

It seldom exists as a distinct entity but is prone to be complicated by extension of the inflammatory process into neighboring anatomic fields, as, for instance, either a scleratizing keratitis, a chronic cyclitis, a choroiditis, or a plastic iritis; in short, uveitis with all that that implies, will frequently be found as an accompaniment or complication of chronic scleritis.

SIGNS AND SYMPTOMS OF ACUTE EPISCLERITIS.

Lachrymation, feeling of discomfort or sensation of foreign body in the eye. Moderate tenderness to pressure and what is characteristic of the condition, a circumscribed red elevation over the affected area, carrying over it the uninflamed conjunctiva. In some cases this elevation is as large as a quarter the size of the eyeball, and in appearance is suggestive of a sarcoma of the sclerotic. The size of the elevation varies all the way from that described above to small elevations not larger than a sago grain. The point I wish to make here is that the elevation is the sign which is characteristic of the episcleritis and that for it there is an anatomic reason, i. e., the episcleral tissue, being of a loose reticular variety, easily receives inflammatory exudate, thus promoting prominent swelling, whereas the sclerotic itself, being dense, does not lend itself easily to the deposit of inflammatory debris.

This same anatomic peculiarity also (explains) why there is so little pain in this variety of inflammation.

N.B.

SIGNS AND SYMPTOMS OF ACUTE (SCLERITIS.)

In this division of the classification the symptoms and signs are equally as characteristic. There is no circumscribed swelling over the area of inflammation but (a peculiar bluish purple) frequently sharply circumscribed area of redness which is deep seated in the sclerotic coat, the conjunctiva passing undisturbed over the inflamed area. It is tender to the touch and frequently the pain is quite severe. Several areas in the sclerotic may simultaneously be involved or the whole sclerotic may be the seat of the inflammatory action.

There is lachrymation and photophobia but no interference with the acuity of vision.

SIGNS AND SYMPTOMS OF CHRONIC SCLERITIS.

In this form of the disease which is the ultimate conclusion of the acute scleritis, the signs and symptoms ascribed to the latter are also present, and in addition are found those which are consequent upon the softening and absorption of the sclerotic coat together with the extension of the inflammatory actions to surrounding anatomic areas, viz., staphyloma. Shining of the dark choroid through the thinned sclerotic to which may be added the signs and symptoms of scleratizing keratitis, irido cyclitis, choroiditis or uveitis and finally degenerative processes terminating in destruction of the functional activity of the eye.

PATHOLOGY.

These are true inflammatory processes with all that that means from a pathologic standpoint, there being present all the various details found in that process in other parts of the economy. It is unnecessary to describe the minutia of the pathology of inflammation but it will be found in all its details in the various forms of the disease.

In chronic scleritis in consequence of the long continued pressure within the sclerotic coat from the inflammatory exudate this dense resisting membrane is gradually softened, absorbed and replaced by a less resistant substance which is unable to withstand the intra-ocular pressure and thus admits of the formation of staphyloma.

ETIOLOGY.

One has to go far a-field in seeking and following out the various ramifications of the causes of this disease.

That it is a local manifestation of a constitutional disease can be stated, I think, without fear of successful contradiction. The histologic elements, going to make up the episcleral and scleral tissue are found to be of the white fibrous variety. It is further known that those anatomic structures which are most prone to be influenced unfavorably by the various forms of auto-intoxication from disturbances in the gastro-intestinal tract, in the metabolic functions of the liver or in the eliminative work of the kidney, bowels or skin are made up largely of this same white fibrous histologic elements, such as the joints, ligaments and the pericardium.

This analogous makeup throws some light on the etiologic factors to be looked for in inflammatory actions involving the episcleral and scleral tissue.

It is a well-known fact that rheumatic and uric acid conditions of the economy are frequently associated with joint and pericardial inflammation, and so it is also in the episcleral and scleral inflammation. The underlying cause in this difficulty is in the majority of cases a saturation of the body with the products of defective digestion or inefficient elimination, or of both. This does not necessarily mean that that patient is a rheumatic subject, but merely that he is a subject of auto-intoxication or auto-infection which may or may not be rheumatic.

We might go a little back of this again and inquire what this auto-intoxication means, and here we would find indeed a many-sided question. Any disturbance in digestion from the esophageal end of the stomach to the lower rectum might be the cause of an auto-intoxication. Any want of proper working of the portal circulation and any failure on the part of the various emunctories to do their work properly would bring about a condition of affairs capable of introducing into the circulation the poison which would eventuate in an episcleritis or a scleritis.

Another thought in this connection worthy of some elaboration is this: Is there some form of infection at work producing poisons or ptomaines which, upon being absorbed, produce this form of inflammatory action?

The good influences of antistreptococcus serum in the treatment of certain forms of so-called rheumatism is very suggestive of the diseases which are so classified not being rheumatism at all, but the result of bacterial infection, and so, too, it may be in some of those cases episcleritis and scleritis. Syphilis, in my experience, is an exceedingly infrequent cause of this inflammation.

TREATMENT.

The local treatment should consist of such measures as are best calculated to combat inflammatory action. Rest, (chiefly physiologic), by means of non-use of eyes, protection from light and paralyzing the ciliary muscles by atropine.

In some cases associated with high tension eserine may be indicated.

Hot antiseptic eyebaths: Local blood letting by leeches artificial or otherwise. In order to secure the easiest use of the eye all refractive errors should be corrected, as also so should all imbalances of the muscles. Disinfection of the conjunctival sac can be secured by argyrol, protargol or boric acid. Adrenalin, while it has a wonderful influence in temporarily controlling congestion, in my experience is not curative, and may be in some cases very undesirable excepting, perhaps, for very brief periods of time; the reactionary congestion being very undesirable.

The constitutional treatment must aim at, above all things, a correct mode of life as to exercise, diet and the proper functional activity of the skin, bowels and kidneys.

It is impossible to lay down a general plan of diet for these cases. The dietary that the individual's digestive organs can properly take care of is the best one suited. In any individual case this can only be carried out by careful study. In the way of internal medication salicylate of soda is the drug which gives the best results, but in order to secure the beneficial effect of the drug it must be fresh and pure and given in solution, and because it is so very quickly eliminated the dose must be frequently repeated.

How much of a dose of salicylate of soda shall be given?

A large dose and frequently enough repeated to secure the full physiologic effect of the drug, viz., tinnitus aurium and sweating.

Generally speaking, fifteen grains every three hours, night and day will be required to do this, and not until it is done will the best effect upon the eye be noticeable. If salicylate of soda disagrees or is contra-indicated, aspirin may be used. In acute episcleritis and acute scleritis this plan will be effectual, and in many cases of chronic scleritis a cure can be thus brought about, but in a certain number of cases of the latter variety the cure will be incomplete and something more is needed. Hot mineral baths are very important adjuncts.

Recently in quite a number of such cases I have found the employment of vigorous pneumatic massage applied directly to the eye

ball to be of vast value in so changing the circulation in the eye and orbit as to bring about a rapid and apparently permanent cure.

Furthermore it would seem to me that in cases intractable to those forms of treatment the antistreptococcus serum could be used by the hypodermic method with advantage, as could also the subconjunctival injection of normal saline or bichloride solutions.

Section In order to secure a permanency to the cure the dieting and hygienic control must be forever kept up.

57 WEST FORT STREET.

TWO UNUSUAL FORMS OF KERATITIS, PROBABLY RHEUMATIC IN ORIGIN.

HOWARD F. HANSELL, M. D.

PHILADELPHIA.

In reporting these two cases of keratitis I may be falling into the error, which I believe to be common among clinical writers, of regarding as unusual types of disease, and as worthy of publication, the stages of development and decline of inflammations of the cornea not infrequently observed by others. In my experience, however, they are unique. I hesitate to designate either of them by the name that appears to signify their most striking sign and to add one or two more to the already long list of keratites described according to appearances with little regard to etiology and pathology.

Case 1. Mrs. R., aged 60, a delicate, anemic woman, had suffered with inflammation of the left eye for one month. She complained of partial loss of vision, moderate photophobia and neuralgic pain in the eye and orbit. The pain was sharp and periodic, recurring in severe paroxysms about midnight and continuing for an hour or two. The symptoms increased in severity until vision was reduced to counting fingers at a few feet, and the patient was exhausted with suffering. Upon examination after one month's duration of the affection it was found that the temporal two-thirds of the cornea was the seat of an infiltration resembling in shape Chinese characters. The lines of infiltration were several mm. in length, changed in direction by one or two acute angles, sharply defined, dense white, and separated from each other by almost perfectly transparent and unaffected cornea.

The opaque lines ended abruptly in clear tissue. The overlying epithelium was preserved in its integrity and was not elevated beyond the level of the healthy cornea. At this time the infiltration was not vascular, but later, at the incipency of the healing process, a minute blood-vessel formed in the axis of each opaque stripe and extended from the limbus to the abrupt termination. Lens magnification showed that the affection was located in the middle layers of the cornea—a true interstitial deposit—and that the subsequent vascularity was also deep. Accompanying the infiltration, appearing at the same time and continuing until the termination of the acute stage, were two vascular superficial round ulcers, one near the upper and one near the lower limbus. Undoubtedly the two forms of disease were etiologically connected, but clinically they offered distinctly different characteristics. The cornea was surrounded by a zone of conjunctival and ciliary congestion, the iris not apparently affected, and the interior of the eye seemed to be healthy. The resemblance of the opacity to dendriform or malarial keratitis suggested examination of the blood for *plasmodium malariae*. Several examinations gave negative results. The urine was free from albumin and sugar. The patient was admitted to the Polyclinic Hospital and treated with atropin and hot water bathing locally and given twelve grains of quinine daily. At the end of the first week no improvement was noted except the relief from nocturnal neuralgia. During the second week of her stay, large doses of salicylate of sodium and Fowler's solution were administered. Under the use of these remedies the symptoms rapidly disappeared. The superficial vascular ulcers healed and the interstitial deposit was to a great extent absorbed.

Case 2. A man, 36 years of age, complained for some days of dimness of vision, intense photophobia and excessive lacerimation. Notwithstanding intelligent and well directed local treatment by a general practitioner, who is also something of an expert in ophthalmology, the symptoms increased in severity. At the time of my examination the cornea was dotted immediately behind Bowman's membrane with about twenty-four small gray discreet spots, scattered through its area and not confined to the lower quadrant, as is characteristic of the so-called descemitis or punctate keratitis. Otherwise the cornea was clear and the iris unaffected, but the anterior chamber was deeper than normal and the tension raised to ± 1 . The symptoms were relieved immediately by instillation of eserine, and under this remedy the points of opacity cleared away in a few days, to be followed by an attack of acute inflammation of the sclera. The case may be regarded

as one of acute rheumatic keratitis with prior involvement of the cornea. The deep anterior chamber and the high tension were due to a disturbed relation between excretion and secretion, the normal relation being reëstablished and maintained by eserine.

The second case may be properly designated as superficial punctate keratitis, and yet it is an illustration of an essentially different type from those affections described under that head. Even that reported by Posey under the same title has no points in common except that the cornea is the seat of the disease in both. A Japanese writer describes the case of a man, 26 years old, who had for several days partial loss of vision from "countless minute areas of opacity with clear patches between, deep in the substantia propria of the cornea." The same affection attacked the other eye and "presented the appearance of typical double circumscribed avascular interstitial keratitis." He believes "that the wandering cells in slight or very chronic inflammatory cases fill the lymph spaces of the cornea and that they do not enter the lamellæ, and hence produce the appearance of typical punctate spots with clear interspaces."

The first case may be classified under the title of "Lattice-work Keratitis," described by Beber in 1890, and again by Haab in 1899, a name that fairly well describes its most conspicuous symptom.

NOTES FROM THE CLINIC OF DR. GALEZOWSKI.

BY E. C. ELLETT, M. D.,

MEMPHIS, TENN.

Illustrated.

Dr. Galezowski's clinic is at 41 Rue Dauphine, Paris, in a building intended for other purposes, but which serves very well for this. The clinic is open from two to four daily, and the service, while I was there, ran about fifteen new and two or three times that many old patients a day. The out-patient department occupies four rooms on the second floor and above this is the hospital with thirty beds. All of this is a private charity and is maintained by Dr. Galezowski himself at an expense of 20,000 francs a year. The arrangement and method of work is not different from that of other small independent clinics, and needs no special mention. The division of time is as follows: Mondays, Wednesdays and Fridays are operating days; Thursday is ophthalmoscopic day, and Saturday is refraction day. Dr. Galezowski attends in person daily, sees the new cases and some of the old ones, gives treatments and performs such minor operations as removal of foreign bodies, slitting the canaliculi, probing the tear ducts, etc.,

at the treatment table. Physicians visiting the clinic are cordially welcomed and made to feel at home, with seats close to Dr. G.'s elbow. While there I did not find the clinic crowded with visitors as it probably is in the winter. Dr. G. talks constantly and in the most entertaining and instructive way about the cases. The fact that he talks slowly is quite an advantage to one whose knowledge of French is limited.

Of the many things of interest one sees in any clinic, it is worth while to mention a few, and in this instance only those things need be mentioned concerning which opinions and practice differ from our own.

Let me first speak of the Thursday ophthalmoscopic seance. While such examinations are made daily by the assistants, all cases with fundus lesions are referred to this day, when they pass under Dr. Galezowski's own eye. He seats himself at a table on which rests a blackboard, and upon this he sketches the fundus changes before passing the case on to the assistants and students for examination. He uses his own pattern of ophthalmoscope, and the indirect method exclusively. There are more cases than one can digest in one afternoon,

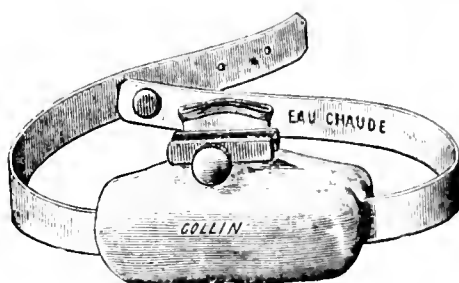


Fig. 1.

but this enables one to do a little selecting, and not only single instances, but groups of cases of most of the ordinary fundus lesions at least, can be studied in one afternoon. Dr. G. is willing to talk and answer questions, as well as so skilled in the work, that this feature of his clinic will always be recalled with the greatest pleasure. The optimism which prevails concerning the possibility of help in some of the hemorrhagic and inflammatory lesions of the retina and choroid can only be judged by long observation of the cases and their treatment, but certainly they are more optimistic than we. The favorite line of treatment in these cases is the instillation of adrenalin and hamammelin solutions with alternate hot and cold applications to the eye. The latter are made by means of little rubber bags of Dr. G.'s devising (Fig. 1), each being applied for fifteen minutes at a time for an hour twice a day. In addition to this, appropriate general treat-

ment is carried out. In specific cases no iodide is given, or, indeed, any internal treatment at all, reliance being placed on inunctions alone. A special form of mercurial ointment is used, 50 per cent strength, made up with olive oil and vaseline and put up in capsules containing two grams. One of these is rubbed into the skin in the usual manner daily until seven hundred doses have been taken, when the course is ended and the patient is cured. Mydriatic drugs are not used so frequently or freely as with us in the inflammatory conditions of the anterior segment, and they are used in the form of ointments very often. A favorite method of employing the mydriatics is to instil duboisin at night and eserine in the morning. I did not see the artificial leech used.

There were many cases of superficial keratitis (ulcerative) at the clinic, most of them being phlyctenular, all of which are put down as herpetic, and ascribed to a febrile condition. In the treatment of this condition an iodoform ointment (1 per cent) is much used, rather more, I think, than the yellow oxide of mercury, and it seemed to me that not so much attention is paid to the digestive condition of the children with phlyctenular ophthalmia as is the rule with us. I did



Fig. 2.



Fig. 3.

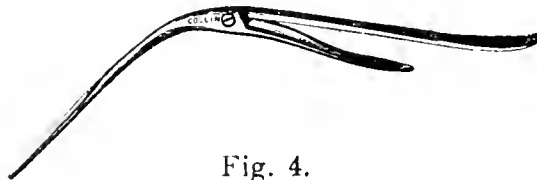


Fig. 4.

not see any of our popular caustic agents, such as iodine, carbolic acid, nitrate of silver or the actual cautery, used on these cases, nor does the condition of the nose and naso-pharynx seem to be as carefully scrutinized as we generally believe to be necessary.

The lachrymal passages are given more attention than I have ever seen anywhere. Practically all cases of conjunctivitis not trachomatous are put down as lachrymal conjunctivitis, and treated by slitting the canaliculi, probing and syringing. For this work, Dr. G. uses his own model of knife (Fig. 2) and probes (Fig. 3), and occasionally a dilator (Fig. 4), also of his own design. It is not possible to judge

fairly of the benefit which follows this treatment, applied almost as a routine practice, in such a brief visit as mine was. Dr. Galezowski does not practice excision of the sac at all.

The favorite stringent applications are sulphate of zinc in 1 per cent solution, and a solid cyanide of copper, called "cupricine," in 10 per cent crayons. The latter is a substitute for copper sulphate, than which it is much less severe and said to be equally efficient. Nitrate of silver is certainly not so much used as in this country, and I saw no protargol, argyrol or similar preparation. In conjunctival and corneal inflammations, the eye douche is much used, plain water being thrown with a vaporizer, which operates by steam and is similar to the ones used by the hair-dressers for steaming the face. The vapor is warm, not hot, and is administered by a nurse, who collects a fee of 25 centimes for each administration. I was not impressed with its superiority over irrigation with one of the milder antiseptic solutions, unless the psychological effect amounts to something.

From what I could see of the work, refraction is not so carefully done as we see it here. I was surprised not to see the ophthalmometer used at all, not so much because I believe in its value, but that this is its home. Retinoscopy is very little used, and cycloplegics are apparently used only exceptionally. The only trial cases that I saw are certainly not such as one equips himself with to do refraction in this country; but it should be borne in mind that these observations were made in a clinic where the vast majority of the patients come for the treatment of inflammatory diseases or for operations, and the eye-users and neurotics who compose such a large number of one's office refraction cases were almost entirely lacking. In the private offices the equipment is all that could be desired. The means and methods employed were doubtless sufficient for what we may term the "gross refraction."

In operative work the greatest skill was displayed, but there was not the regard for asepsis and antisepsis which we think is necessary. We know that as the instruments alone touch the eye in our operations it may be necessary to have the instruments alone thoroughly aseptic, but I do not think the American conscience would rest easy in the presence of pus after an operation, unless the field and operator's hands, as well as the instruments and dressings had been thoroughly prepared, while it is certainly running a risk to let sutures trail over dirty faces, and to use instruments fresh from the case without sterilization. But I must say that I saw no bad results from these practices. Chloroform is used exclusively for anesthesia, and with much more

freedom than on this side. Many of the operations are done during the primary stage of anesthesia, which looks like operating before the patient is under the anesthetic. In the use of cocain, I am sure that sufficient time was not allowed for it to have its full effect, the operation often being begun almost as soon as the solution was instilled into the eye. In most of the operations there was little departure from the methods in vogue here. Chalazia are dissected out from the conjunctival side after being caught up with a tenaculum, and the wound is closed with a stitch. After enucleation, the cut edges of the conjunctiva are stitched, and while I have not seen this done as a rule in this country, it seems to me that there is less discharge from the socket when it is done, and the healing is probably a little more rapid. I had the good fortune to see the operation of anterior sclerotomy performed by Dr. Galezowski's method several times. He does this on cases of glaucoma simplex, where the tension is little, if any, elevated. There is a group of cases which he classes as glaucomatous atrophy, for which he especially advises the operation. Since the cases are undoubtedly usually put down as cases of simple atrophy,



Fig. 5.

it may be of interest to enumerate what he considers to be the characteristic signs of this condition:

1. The papilla is white, especially in the temporal half.
2. The central veins are diminished in size at their point of entering the nerve, but further back on the retina they are larger.
3. There is sometimes spontaneous venous pulsation, but not arterial.
4. The pupil is large and irregular, and reacts to light.
5. The field is contracted, especially nasally. (On this sign he lays great stress.)
6. Dyschromatopsia is not present.

For these cases the operation of sclerotomy is performed with Dr. Galezowski's sclerotome (Fig. 5). This is entered in the sclera, just without the limbus, and pushed into the anterior chamber and rapidly withdrawn. Four such punctures are made about over the insertions of the recti, and with such skill that all four are made without losing the aqueous. The operation is said not to be painful, and its performance is followed by the use of eserine. It does not answer the purpose in inflammatory glaucoma, as I had the opportunity to see, and in these cases an iridectomy is done.

In the performance of the operation for cataract, more care is taken in the antisepsis and anesthesia. The puncture and counter-puncture are placed just at the sclero-corneal juncture, and the flap is semi-elliptical, and of a size half way between that of Daviel and that of Graefe. The summit of the flap is 2 mm. from the corneal border, within the cornea, like that of Daviel. Iridectomy is omitted and the speculum is removed after the laceration of the capsule. Galezowski's speculum has joint-arms, to permit of its being bent down on the cheek out of the way (Fig. 6). Having removed the speculum, he rubs the third finger of the right hand on a bit of chalk, and with it thus protected from slipping, he raises the upper lid. A spatula is held between the thumb and index finger of this hand, and the lower lid is depressed and pressure made on the ball with the left thumb. The lens is thus made to present, and by pressure with the thumb and counter-pressure if necessary with the spatula, it is delivered and eserine instilled. I saw the operation performed on a woman with aniridia and congenital cataract, and whose son was similarly afflicted.

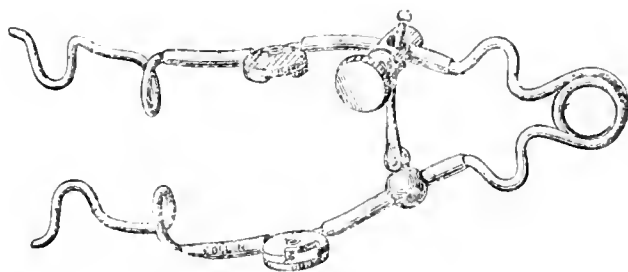


Fig. 6.

The method of operating for strabismus (tenotomy) is to make a long horizontal conjunctival incision and an equally free vertical division of the capsule of Tenon. The tendon is then caught up and freely divided, the conjunctival wound sutured and the sound eye bandaged. I saw this operation performed on a boy about twelve years old, whose mother said he had not been previously treated with glasses or exercise.

After all operations, the eye is closed with a strip of thin sterilized adhesive plaster, or "taffeta," over which the usual dressings of gauze, cotton and bandage are applied.

In conclusion, I wish to acknowledge the great kindness of Dr. Galezowski and his assistants to me, and to advise those who visit Paris not to fail to attend this clinic. The service is good, the difference between practice there and here sufficient to be of continual interest, and the ophthalmoscopic work on Thursdays is a treat.

DEFICIENT DYNAMICS OF THE EXTRA-OCULAR MUSCLES.

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It is my purpose in this paper to specify and describe a condition of the muscles controlling the movements of the eyeball which, although known to exist, has not, so far as I can determine, been isolated and considered as a distinct entity apart from other pathological conditions. In order to make clear the condition which I wish to present, the following groups of muscle anomalies are given:

- (1) Palsies.
- (2) Concomitant strabismus.
- (3) Heterophoria.
- (4) Hypovergence.

The last group is the one to which I refer. By hypovergence I would indicate a condition to which no term has heretofore been definitely applied—that of deficient dynamic action of the extra-ocular muscles. There is great need of simplification and exactness in the nomenclature of ocular myology. Many of the terms in use are improperly applied and there is unneedful multiplicity of terms. Vergence should be used in referring to the relation of one visual axis to the other—*vergo*-incline. Duction should be employed when referring to the movements of the visual axis in exploring the field of fixation. The terms adduction, abduction, hyperduction, hypoduction, sursumduction, superduction and deorsumduction, as applied to the neutralization of prism diplopia, are improperly used.*

Although opinions vary as to the amount of verging power, expressed in prisms neutralized, the concensus of belief is that, normally, the power to separate the visual axes in the vertical direction (sursumvergence, improperly called hyperduction) is 2 to 5 degrees; in the horizontal axis, *outward* (divergence, improperly called abduction) 6 to 8 degrees; and *inward* (convergence, improperly called adduction) 18 to 24 degrees. Individuals may possess more than this amount of dynamic vergence in any direction without suffering any discomfort, providing no deficiency exists in any other direction. On the other hand, to possess a less amount generally gives rise to a train of symptoms of the most distressing character. Such deficiencies of vergence may be expressed as follows:

*See Duane, Am. Text-book of Diseases of the Eye, Ear, Nose and Throat, p. 502.

(1) Hypovergence, deficient dynamic vergence in any direction.

(2) Hypoconvergence, deficient dynamic convergence.

(3) Hypodivergence, deficient divergence.

(4) Hyposursumvergence, deficient sursumvergence.

The last is considered as "right" or "left."

It is a well-known fact in physiology that no muscle or group of muscles can continue to perform its normal functions without disturbing symptoms, if at all, when such functions call forth the greatest exertions of which the muscles are capable. In other words, nature has been prolific in endowing us with a surplus power. This is a great advantage, inasmuch as only the simplest functions could be performed if only the necessary power for these had been granted. On the other hand, as may be seen later, and as is witnessed in all athletic accomplishments, this power may be greatly increased by exercise. A striking example of this is seen in the ciliary muscle in the case of hypermetropes. Hundreds of hypermetropes go through life with little or no disturbance, because the exercise of the ciliary muscle makes it equal to the amount of work to be accomplished. Such muscles are above normal in the amount of function of which they are capable. But if the hypermetropia is too great, or for any reason the muscle is incapable of such development, then symptoms arise.

These laws apply to the extraocular muscles. It is not in those cases alone in which there is extra work to be done (esophoria, exophoria, or hyperphoria) that symptoms arise, but in the cases in which such extra work, or, as will be seen, in which the *normal function* is not properly met.

The forms of deficient dynamic function have heretofore been considered, if at all, under the heading of some of the heterophorias. The only exception to this with which I have met is to be found in Worth's "Squint." He gives a separate consideration to what is herein classified as hypoconvergence. His title is "Insufficiency of the Dynamic Convergence," to which he devotes several pages. He does not mention other forms of deficient dynamics.

The study of the extraocular muscles generally occurs with that of the refraction. This is advantageous, since they are so intimately associated, physiologically, with the ciliary muscle which plays such an important role in connection with refraction. It is a general rule among ophthalmologists to study the extraocular muscles by means of the Maddox rod or other means of determining static balance. A careful study of the dynamic properties of these muscles

is very generally neglected, I believe, except in such cases as may show sufficient static imbalance as to incite to a study of the power and limitations in vergence of which they may be possessed. It is generally taken for granted that, if the static balance is not deficient, there is not present any defect in the ability of the eye to assume the ordinary movements and secondary positions.

In other words, it is assumed that there is a definite relation between the statics and the dynamics in any given case. This may be generally true, but the exceptions are of sufficiently frequent occurrence as to warrant a careful determination of the dynamics as well as the statics in every case. An examination of 100 consecutive cases from my records, as given below, shows 14 per cent of all cases where the refraction was examined to possess one or more of the three forms of hypovergence, and only half of them (Nos. 3, 6, 10, 11, 12, 13 and 14) show a corresponding static imbalance, leaving 7 per cent of all cases to possess hypovergence *independent of static balance*.

No.	Name	Statics			Dynamics				Correction
		Es.	Ex.	Hyper.	Cn.	Div.	Sursumv.		
							R	L	
1	J. R. F.	5°		¼°	12°	1°	1°	1°	O. D. — .1c ax. 75 $\frac{2}{3}$ ° O. S. — .50c 105 $\frac{2}{3}$ °
2	S. W.	1°		¾°	17°	8°	½°	3°	O. D. + .25c 15 $\frac{2}{3}$ ° O. S. + .25c 180 $\frac{2}{3}$ °
3	J. H. H.		2½°	1½°	10°	6°	1°	4°	O. D. — 2.75 sp. $\frac{2}{3}$ ° O. S. — 1.75 sp. $\frac{2}{3}$ °
4	A. H. F.	½°			7	2°	1°	1°	O. D. + .1 sp. $\frac{2}{3}$ ° + .50c 75 $\frac{2}{3}$ ° O. S. + .1 sp. $\frac{2}{3}$ ° + .75c 90 $\frac{2}{3}$ °
5	M. A. K.	½°		¼°	20°	3°	1°	2°	O. D. + .1 sp. $\frac{2}{3}$ ° O. S. + .1 sp. $\frac{2}{3}$ ° + .25c 75 $\frac{2}{3}$ °
6	K. C.		½	½°	12°	11°	2°	2°	O. D. + 1.25 sp. $\frac{2}{3}$ ° + .50c 90 $\frac{2}{3}$ ° O. S. + 1.50 sp. $\frac{2}{3}$ ° + .50c 75 $\frac{2}{3}$ °
7	W. N.			½°	12°	4°	1°	1°	O. D. + .3c ax. 85 $\frac{2}{3}$ ° O. S. + .1 sp. $\frac{2}{3}$ ° — .3c 105 $\frac{2}{3}$ °
8	F. H. N.	6		1½°		14	6	4°	O. D. + .25 sp. $\frac{2}{3}$ ° + .25c 90 $\frac{2}{3}$ ° O. S. + .25 sp. $\frac{2}{3}$ °
9	A. N.	1		½	8°	8°	2°	2°	O. D. + .1 sp. $\frac{2}{3}$ ° + .25c 75 $\frac{2}{3}$ ° O. S. + .25 sp. $\frac{2}{3}$ ° + .75c 165 $\frac{2}{3}$ °
10	L. M.	5			1°	35°	4°	½°	O. D. + 2.25 sp. $\frac{2}{3}$ ° + .25c 180 $\frac{2}{3}$ ° O. S. + 2.50 sp. $\frac{2}{3}$ °
11	J. H.	2½°				20°	2°	2°	O. D. + 1.75 sp. $\frac{2}{3}$ ° + .1c 105 $\frac{2}{3}$ ° O. S. + 1.50 sp. $\frac{2}{3}$ ° + .1c 90 $\frac{2}{3}$ °
12	S. P.		2½°	1½°		6°	9°	2½°	O. D. + .50 sp. $\frac{2}{3}$ ° + 2.50c 125 $\frac{2}{3}$ ° O. S. — .75c + 60 $\frac{2}{3}$ °
13	E. E.		½°	¾°		20°	7°	2½°	+ .1 sp. = $\frac{2}{3}$ ° + 1.25 sp. $\frac{2}{3}$ °
14	A. G.		1½°	1°		20°	8°	3°	O. D. — .50 sp. $\frac{2}{3}$ ° — 1 25c 155 $\frac{2}{3}$ ° O. S. + .75 sp. $\frac{2}{3}$ ° — .3c 165 $\frac{2}{3}$ °

If an esophoria of, say, eight degrees be present, we have a tendency of the visual axes to deviate inward to such an extent that we scarcely expect to find the diverging power, as measured by prisms, up to what is generally considered normal, *i. e.*, 6 or 8 degrees. On the other hand, we expect to find an unusually great amount of converging power. This relation generally obtains. The exceptions to this rule represent the cases to which attention is herein directed.

On account of the important role played by the refractive conditions the correction has been given in each case. Not all of the high cases of heterophoria to be found in the list of 100 have been included, but where such cases happen to present a deficient dynamic condition they have been given. Since the movements of the eyeball in assuming secondary vertical positions, whether converging or not at the same time, are synchronous, but little verging power is necessary in this direction (*sursumvergence*). And although the static abnormalities of these muscles are of comparatively greater importance, hypovergence in this direction is perhaps not so frequent nor of so great importance to the patient. In the tabulated cases it will be noted that there is hypodivergence in six (Nos. 1, 4, 5, 7, 10 and 11). Of these six, but three (Nos. 1, 10 and 11) had esophoria of any importance. It will also be noted that of these six, only three (Nos. 5, 10 and 11) had normal convergence, showing a *general* deficiency in physiologic action of the extraocular muscles. In case No. 1, with five degrees of esophoria and but one degree of divergence, we should expect to find the patient a hypermetrope with increased stimulus to the convergence. On the contrary, the refraction condition present—myopia—lessening the amount of stimulation to the third nerve, would tend to produce a lessened amount of convergence, and this we find to be present. Therefore, the dynamic condition corresponds in this case to the state of refraction, but the static balance does not. From an analysis, then, of this case, we conclude that the deficiency in it is to be found in the muscles themselves, or, what seems more probable, in the brain center which presides over the physiologic movements of the eyeballs during the assumption of secondary positions—presuming that such a center exists.*

*Duane, American Text-book of Diseases of the Eye, Ear, Nose and Throat, p. 502, says: This movement * * * is apparently governed by a nerve center distinct from the nerve nuclei of the internal recti.

Fuchs, Text-book of Ophthalmology, p. 588, says: The movements of the ocular muscles are regulated by nervous centers of different rank. The lowest centers are the nuclei on the floor of the fourth ventricle from which

Of the fourteen cases, nine (Nos. 1, 2, 3, 4, 6, 7, 8, 9 and 12) show hypoconvergence. Only three of the nine possess exophoria, whereas we should expect to find exophoria in all if we adhere to the rule of relation between the statics and the dynamics. In three of the nine cases of hypoconvergence the eyes are hypermetropic, which should tend to give increased converging power, while in four they are either myopic or antimetropic—conditions which discourage convergence. In Nos. 2 and 8 the state of the refraction would not generally be considered to have any influence on the dynamics of the extraocular muscles. The five cases of exophoria are three of them myopic and the other two are hypermetropic.

The correction of refraction errors, where they exist, is in many of these cases an important step in the treatment, and must therefore be considered an important element in the etiology. The cause is, however, generally to be found either in the lack of development of the associated movement center, to which reference has already been made, and which we have ample reason to believe exists, or it is physiologic, and consists in the patient not having discovered the functions of which these muscles are capable.

The symptoms which arise vary according to constitutional idiosyncrasy, but the following embrace those most commonly met with: transient diplopia, overlapping of the pages when reading, vertigo, *muscæ*, "sick-headaches," "panorama-headaches," fainting spells, hystero-epilepsy, aching of the eyeballs or in the region of the canthi, tugging or drawing sensation about the eyes, temporal and occipital headaches, inability to do any close work continuously, and a history of having frequently had changes of glasses without relief.

In making the study of these muscles the Maddox rod is the most practical means of testing the static balance. It should be placed in the ordinary trial frames, and prism diplopia should not be produced in connection with its use, as this renders the relation of the images to each other less constant. This is due to the fact that one image—generally the one seen by the uncovered eye—falls upon the macula, while the other—that produced by the Maddox rod—falls upon the periphery of the retina, where fixation is not developed. "The rod" used should be a multiple one, so that perfect centering will not be necessary, and as the patient approaches

the nerves themselves arise. Presiding over these are centers of high ranker—the association centers—for co-ordinating the actions of the individual ocular muscles.

close to the light, converging of the visual axes will not interfere with the images being both seen at the same time. The light used should be a small flame, and not that obtained from a perforated opaque chimney. If the chimney is used, the light escaping at the top or bottom will produce other, broader, bands of light, which confuse the patient or cause him to give incorrect answers. With the patient at twenty feet distant the rod is placed before the left eye (it is best to make a habit of placing it before the same eye), with the line vertical, and the patient is asked to give the relation of the line to the flame. If he does not see it at once, his attention may be attracted to it by tilting it from side to side or by having the patient alternately raise and lower his face, thereby projecting the line upward and downward. If, when the prisms have been placed in the frames as indicated, the line is quite unsteady, moving from side to side across the flame, these movements of the face up and down will better enable the patient to determine when the line most nearly tends to remain through the flame. The vertical muscles are tested in a similar manner. These results must not be taken to have any special significance until the dynamic movements of vergence are determined, which may be done as follows: The patient is allowed to stand, being at the same distance as before from the light, which is on a little lower level than his eye. Begin with the weakest of the muscles, i. e., those producing vertical vergence, and examine each group in order of its strength. *Practical Tip* If this rule is not followed, the increased action produced by the tests in the strongest groups will interfere with a proper determination of the relative power of the weaker muscles. To determine the right sursumvergence a prism of one degree is placed before the right eye with its base down, or before the left eye, base up. As soon as single vision is obtained it is exchanged for a prism of two degrees, placed in the same position, and so on until diplopia becomes permanent. The left sursumvergence is tested in the same way, employing only enough time to encourage the best efforts of either group, without "training" them. Prolonged efforts at right sursumvergence will often render the left sursumvergence a degree or more less than normal, or vice versa, causing the results to be misleading. The diverging power is tested by placing a prism of, say, six degrees, base in, over either eye and making such changes as the answers indicate. When diplopia begins to be produced, the muscles can often be encouraged to greater action by allowing the patient to approach the light. This would seem paradoxical, since the convergence occurring would have to be overcome, but in a normally

balanced eye the dynamic power of the muscles does not vary in proportion to the amount of convergence employed, although it does vary to some extent.*

There is not the same prism diverging, converging or sursum-verging power at shorter distances that exists at parallelism of the visual axes. The fusion sense is much more acute at shorter distances, and this it is that causes greater efforts to be made as the light is approached. The single vision secured by approaching must be maintained as the patient walks backward to determine the true verging power.

The dynamic convergence is determined in the same manner, with the bases of the prisms placed outward. In adding to the amount of prism while the patient is holding against diplopia at distance, low degree prisms should be used on the eye over which the changes are being made. For instance, if the convergence is increased to fifteen degrees, and there is difficulty in maintaining single vision above that, a prism of this number should be placed on one eye, base out, and while the patient is encouraged to fix the light constantly and care is taken not to interrupt the line of fixation, a one-degree prism is placed, base out, on the other eye. If this does not produce diplopia, a two-degree prism is taken in one hand and immediately slipped into the trial frame while the other hand is removing the first prism. In other words, all the power already exerted is maintained and greater effort called for without relinquishing a part of what is already exerted. When diplopia occurs, the light is again approached and backed away from, and the process repeated.

In any of these tests pains must be taken to see that the axis of the prism is exactly vertical or exactly horizontal, and this is best determined by having a portion of the base of each prism "ground" exactly at right angles to its axis, the edge of which will be readily determined by the examiner to be horizontal in the vertical tests and vertical in the horizontal tests. Trial frames are so often not true in their reading that they should not be depended upon for reading the axis of the prism, especially when a high degree prism is being used.

It will often be found that, although diplopia is present, it will not be noticed by the patient. This may be avoided by tilting the prism and causing the false light to move, when it will be seen. On the other hand, the brassy reflection from the front of the prism

*Jackson, Diseases of the Eye, p. 226, says: A relative divergence of 4 or 5 c. at the reading point is normal.

will often be taken by the patient for another light, in which case he may declare he sees three or even more lights. His attention must be called to the difference in their appearance. The room should not be too light.

No definite rule can be laid down as to the limit of verging power which is sufficient to produce symptoms, although it will generally be found that less than one degree of sursumvergence, four degrees of divergence or fifteen degrees of convergence will prove troublesome. This depends largely upon the vocation, temperament and habits of the individual. A "nervous" person requires muscles which perform their work liberally and with ease; a student, desk-worker or mechanical artist requires a free convergence; a theater-goer must be easily able to maintain parallelism for hours at a time, which requires a surplus of diverging power, etc.

The treatment of hypovergence in any of its forms is generally very satisfactory. Patients as a rule respond promptly to prism exercises, and in some cases two or three trainings prove sufficient.

The training is best conducted in the office, except in cases where unusual resistance to treatment is offered, when in addition to this the patient may be taught to conduct the exercises at home. The correction of errors in refraction is of importance.

The appended case histories are illustrative of hypovergence:

CASE 1.—A. H. F., male, aged 21. Never worn glasses. No important inflammatory history. Has been engaged in clerical work for the last five years. During this time he has been subject, while at work, to "spells" in which he first notices a glimmering figure in his temporal fields. This gradually spreads and involves the entire fields. Objects seem to vibrate and small objects become double. He grows faint and pale and breaks into a cold perspiration, and is compelled to lie down. Never becomes unconscious. Attacks last ten or fifteen minutes, when he can resume work. He avoids any close work at home lest an attack come on.

Esophoria, $\frac{1}{2}$ degree; no hyperphoria; sursumvergence, 1 degree; divergence, 2 degrees; convergence, 7 degrees.

During these tests he had one of the spells just as described above. Correction under cycloplegia, O. D. $+1$ Sp. $\ominus +50c$, ax. $75 = 20/20$. O. S. $+1$ Sp. $\ominus +55c$, ax. $90 = 20/20$. This was ordered, less 50 Sp., and muscle training instituted. After four office trainings his divergence was five degrees; convergence twenty degrees. He has suffered no attack since—during a period of six months.

CASE 2.—L. A., female, aged 26. Has been glassed five or six times within the last three years. No important inflammatory history. Suffered a solar scotoma, which lasted several days, from watching an eclipse five years ago. No evidence of this remains. For several years has had pain in the eyeballs and in the occiput, always brought on or increased by any close work, which can be continued for only a short time.

Esophoria, $\frac{3}{4}$ degree; no hyperphoria; sursumvergence, 1 degree; divergence, 4 degrees; convergence, 12 degrees. Correction under cycloplegia, O. D. + .75 Sp. \ominus .50c. ax. 105 = 20/20. O. S. + .75 Sp. \ominus .25c. ax. 75 = 20/20. Her last lenses were .25 sp. less than this, and no change was ordered. The muscles responded slowly to exercises, but divergence of six degrees with twenty-four degrees of convergence was finally attained. The symptoms entirely disappeared, the patient became an omnivorous reader, and after a period of two years there has been no return of symptoms.

REPORTS OF SOCIETIES.

COLORADO OPHTHALMOLOGICAL SOCIETY.

MEETING IN DENVER, OCTOBER 17, 1903

Dr. Edward Jackson exhibited a *case of foreign body (wood) in the orbit.*

On discussion, Dr. E. W. Stevens, who had seen the case in consultation, remarked that "it was quite evident that the lachrymal gland removed had been dislocated. After opening and evacuating the pus, it seemed incredible that such a *woodpile* could have been overlooked, as was subsequently done, but the great depth of the splinters and the difficulty of distinguishing such a foreign body with a probe was manifest. Heretofore he had always thought it would be an easy thing to detect a foreign body in the orbit. The lesson to be learned from this case was not to close up such a wound but to pack it and let it heal from the bottom, when any foreign substances could more easily be found."

Dr. Melville Black "believed that, had the lachrymal gland not been removed, there might have been a lachrymal fistula produced. He believes there may be still more wood splinters in the orbit."

Dr. George F. Libby reported "seeing a man one month ago with the history that a flying piece of steel had struck and entered the orbit above the inner canthus, being directed downward. The patient being a railroad employe, had consulted a local surgeon, who had sealed up the point of entrance with adhesive plaster. Twenty-four hours afterward emphysema had followed and hemorrhage had taken place from a small arterial twig. On probing a sensation as of steel was thought to have been felt one-half inch into the wound. The patient was etherized, an incision made, but nothing could then be found excepting comminuted fragments of the supra-orbital ridge. The wound was packed and healed from the bottom. The emphysema disappeared. Subsequently an X-ray examination showed a sliver of steel located midway between the apex of the orbit and the eyeball. The foreign body has been left, as no irritation has followed."

Dr. W. C. Bane, on discussion, believed "that with an X ray picture of a steel in the orbit the foreign body could be readily removed by the ordinary hand magnet if the substance was in the orbital fat, but if such substance was imbedded in fibrous tissue it was very difficult to withdraw it with such magnet."

Dr. E. R. Neeper reported a "*case of foreign body of eight weeks' standing*. The patient, a school girl, had suffered from signs of ordinary eye irritation. An optician had prescribed glasses, which failed to give relief. One month afterward a general surgeon had detected a swollen point in the lower conjunctival cul de sac, which was treated expectantly. Constant distress continuing, she was brought to Dr. Neeper, who found in the conjunctival sac above noted three polypi, two centrally located, one of these seemingly projecting from the eyeball and protruding upward to the ciliary margin of the lower lid. Another polypus was noted near the outer canthus. With the view of removing the polypi the patient was anesthetized. On removing the larger polypus a broomstraw was seen protruding, which on being removed measured seven-eighths of an inch in length. Subsequently a history of this eye having been struck by a whisk broom about the time the symptoms of irritation began was obtained."

Dr. W. C. Bane showed a case of *macular lesion*. H. M., aged 26, came to the college dispensary, Denver, August 20, 1903, with a history of having been struck in O. S. with a ball. The next morning the eye began paining, since which time there has been poor vision in it. O. D. V. 6-24, O. S. V. 6-36. Pupils equal and reactions normal. Dr. Bane did not see the case until August 25. He found at the center of the macula an ovoid spot appearing 1.5 mm. \times 3 mm. in size long axis horizontal, a spot with a central probably depressed area, white in color, surrounded by a blood-colored areola, the areola being broader than the central white area. There is some pigment deposit, particularly along the upper margin, and a few spots of it irregularly distributed. The amount of pigment is manifestly on the increase.

On discussion, Dr. Jackson "believed the injury was the result of *contra-coup* and was of the kind reported as '*holes of the macula*.' None of the reports had given the depths of these depressions that he recalled. In this case there is not much depression, but there is surely a small amount of it. He believed the prognosis was bad."

Dr. D. Coover "had seen, with Dr. Bane two years ago, a similar case following a cataract extraction."

Dr. Black brought before the society D., aged 62, who sustained a fracture at the base of his skull last July. The fracture evidently ran through the right middle ear and injured the facial nerve. Ever since he has had complete paralysis of the right side of his face. The lower lid has become so flabby from lack of its

muscular support that it bags down full of tears that are caused by the wideopen palpebral fissure. It is becoming imperative that something shall be done to take up the slack in the lower lid so that the tears will no longer have this bag in which to accumulate. Two operative procedures have been thought of, and it is desired to hear from members of the society as to their experiences for the relief of such patients.

On discussion, Dr. Jackson believed cases just like this one were rare. He advised a V-shaped excision of the lower lid combined with Robertson's method of running an incision toward the temple and slipping up the flap. Even with operative procedures there would probably remain some excess of lachrymal secretion from the loss of lid motion.

Dr. Neepor reported a similar case relieved by excising a V-shaped piece from the lid. Two operations were required.

Dr. Black reported a case which had been caused by a street accident—a bicycle pedal had cut the patient's eyelid when he fell from it, leaving a vertical wound five-eighths of an inch in length that had penetrated entirely through the lid. The cornea was intact. The case was seen eighteen hours after the accident. Perfect result was obtained by stitching the opposing surfaces, allowing the sutures to go entirely through the lid.

Dr. E. W. Stevens reported a case of *dendritic keratitis* characterized by little pain or irritation, great stubbornness, and frequent relapses following periods of apparent freedom from the malady. His patient had been treated *persistently* with the following remedies in succession: Tri-chlor acetic acid, alcohol 95 per cent, applications of which were painless, though its application is usually the reverse of painless; carbolic acid; nitric acid, ung. hydrarg. oxid. flav.; iodine-vasogen, which had caused discomfort, but nevertheless its use had been persisted in; holocam. atropin, dionin, hot applications; internally, quinine and salicylates. There was no malarial nor kidney disease; there was, however, an excess of uric acid. Dr. Stevens reported the case to inquire of his colleagues if they had formerly encountered dendritic keratitis in Colorado.

On discussion, Dr. Bane reported having seen several cases; Dr. Patterson one case, which Dr. Jackson had seen in consultation. The other members reported negatively.

Dr. D. Coover showed specimens, photographs of patient and history of a case of papilloma of the cornea. (See October number of THE OPHTHALMIC RECORD.)

Dr. Jackson exhibited *Zeiss Inter-ocular Distance Gauge*. Dr. Neeper exhibited a *proptometer* he had designed.

J. A. PATTERSON, Secretary.

Colorado Springs, October 27.

SECTION OF OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting October 20, 1903. Dr. Samuel D. Risley, chairman, presiding.

Dr. William Campbell Posey exhibited a man, aged 48, with *paralysis of the upward movements of the eyes*. All other extra-ocular muscle movements were good, with the exception of convergence, which was lost. The iris and ciliary muscle in each eye were unaffected. Peripheral and central vision were normal and there were no ophthalmoscopic changes. There was a history of alcoholism dating over a period of twenty-five years. Speech indistinct, bulbar in character; tongue tremulous; no involvement of the fifth or seventh nerve. Patellar reflexes exaggerated on each side. Vertigo upon change of posture for the past three months. The history was given of a second case, a female, aged 65, the loss of upward movement of the eyes following an apoplexy, as the result of which there was complete right hemiplegia. There was no hemianopsia. Eye-grounds were normal. The pupils were sluggish, both to light and accommodation. The lesion in both cases was thought to be in the corpora quadrigemina.

Dr. Posey referred to a recent article by Kornelow, which contains a full account of this class of associated palsies. Kornelow found twenty-seven cases in the entire literature, and of these but twenty were available for study. In one-half of these the affection came on suddenly, either as an apoplexy or in the form of an acute affection, with headache, vomiting, stupor, and increased temperature. Of the ten or eleven autopsies which have been made, neoplasms were found in eight; the tumors, for the most part, had not affected the corpora quadrigemina, but had involved neighboring parts. Kornelow believes that in order to explain the symptom-complex of associated movements, it is necessary to suppose the existence of a center of coördination about the nuclei; *i. e.*, in the corpora quadrigemina. He is of the opinion that these centers are located upon both sides of the brain, each being under the control of both hemispheres.

Discussion.—Dr. Hansell quoted an extract from Dr. Charles K. Mills' work on "Diseases on the Nervous System" in reference to a patient with symptoms resembling those of Dr. Posey's patient. "In this case (paralysis of the movements of upward rotation of both eyes) the trouble with vision began about four years before coming under observation, and for nearly half this time the patient had been troubled with diplopia. According to the report received from Dr. Hansell, the patient had had for two years paralysis of upward deviation of both corneas, it being impossible for him to raise his eyes beyond the horizontal plane. The left eye diverged slightly, but there was no true lateral paralysis. The pupils were equal, reacting to light, and accommodation both individually and consensually, but their movements were sluggish. The right field was concentrically contracted to a decided degree and slight concentric limitation was present on the left. The media and fundi were healthy. The central acuity of vision was 20-40 in the right eye and 20-30 in the left. Examination showed slight difficulty in speaking. The tongue protruded slightly and a little to the left, and the patient showed some tendency to drooling. He complained of a general feeling of weakness in both legs. Both knee-jerks were exaggerated, and a slight, probably spurious, ankle clonus was present on the left. It is not improbable that in this case the lesion present was one of the nuclei or root fibers, and was similar to the lesions recorded in the few cases in which autopsies have been placed on record." Death occurred a few months later, but no autopsy was secured.

Dr. Spiller said that the paralysis of lateral conjugate movement is more easily understood than is the paralysis of upward or downward conjugate movement of the eyeballs. A few cases have shown that the former may be caused by a lesion destroying the connection between the sixth nucleus of one side and the third nucleus of the other. A case that he was able to observe clinically with Dr. C. S. Potts, and to study by microscopic sections, showed that involvement of the posterior longitudinal bundle in the pons may cause the paralysis of lateral associated movement. The patient had complete paralysis of the left external rectus, and was unable to look toward the left with either eye, but the contraction of the right internal rectus was good in convergence. A solitary tubercle was found in the left half of the pons, destroying the left posterior longitudinal bundle, and compressing the fibers of the left sixth nerve within the pons, but not invading the nucleus of the left sixth nerve.

The paralysis of upward or downward conjugate movement of

the eyeballs is more difficult to understand, because the cases with necropsy are very rare. Most cases are complicated by symptoms indicative of a lesion in the region of the corpora quadrigemina. In Dr. Posey's first case there were vertigo, some ataxia, a peculiar bulbar speech, and paralysis of convergence. Tumor is probably the most common cause, but the polioencephalitis superior of Wernicke probably also may be a cause, and the seat of the lesion is probably in the corpora quadrigemina.

In reply to a question of Dr. Oliver, Dr. Spiller said that he did not believe it was possible to obtain electrical contraction of any of the recti muscles with any current that it would be safe to apply near the eyes. He believed that he had been able to obtain contraction with the galvanic current in the levator palpebra superioris in a case in which the paralysis of the oculomotor nerve had not existed long. This muscle is sufficiently near the surface to give a response to the galvanic current when its galvanic irritability is increased in early degeneration.

Dr. Charles A. Oliver gave a detailed history with the results of the microscopic findings of *a case of enucleation for glioma of the retina in 1892; without any recurrence of the disease to date (1903)*. The case was of interest for several reasons:

(1) The length of time which has elapsed without a recurrence, which he accounted for by the plastic and cicatricial material occluding the channels for the exit of the anterior and middle lymph-stream and blood-currents, with the presence of an enormous old organized blood-clot in the subretinal spaces, the atrophy of the optic nerve, and the occlusion of the vascular and lymph channels in the optic nerve itself and its surrounding coats.

(2) The noninvolvement of the fellow-eye. In spite of the long period of time which has ensued since the removal of the affected organ and the increased age of the patient, this must still remain *sub judice*, because some of the glial cells of the retina of the healthy eye may be in a condition for faulty growth and perverted action, thus giving rise to a possibility for independent disturbance.

(3) The age of the patient (91½ years), and the presence of the nests or rosettes.

Some Cases Illustrating Congenital Anomalies of the Eye.—Dr. G. E. de Schweinitz reported *symmetrical dislocation of the crystalline lenses* into the pupil areas, which have occurred in a Hebrew girl aged 6½ years, who presented the general characteristics of rachitis and had had convulsions in childhood. Each crystalline lens

was dislocated forward and occupied the center of each pupil area, precisely as a flat cork would be fitted into a circular aperture through one-half its depth. In other words, each lens was so placed in the center of the widely dilated pupil that the margin of the iris encircled its equator, a zone, equalling less than a millimeter in width, existing between the edges of the lenses and the borders of the iris. This condition was said not to have been congenital, but to have developed after an illness. The refraction of the eye was highly myopic. There were no lesions in either fundus.

He also reported *posterior lenticonus* of the left eye in an American girl, aged 11, the general refraction of the eye being a high hypermetropic astigmatism. The refraction through the center of the cone was myopic 21 D. There were no opacities in the lens or in the cone. The fundus of the eye was normal.

He further recorded four cases of *congenital upward and outward dislocation of the lens*, bilateral in all instances, the lenses being cataractous in one patient, and discussed briefly the methods of operative interference, giving it as his opinion from a review of the literature of the subject that discission of the lens offered the best chances of operative success.

He also reported a case of *bilateral coloboma of the iris, upward and outward*. The colobomas were complete, that is, they extended to the ciliary border and occupied one-fifth of the iris circumference. The lens of the right eye was cataractous from injury; of the left eye clear and the fundus normal. There were no other congenital anomalies in the eye.

Discussion.—Dr. C. A. Veasey exhibited a young girl with *congenital irideremia* of the left eye accompanied by zonular cataract. There was complete atrophy of each optic nerve. He also showed a water-colored sketch of a case of bilateral coloboma of the iris and lens, downward and outward, occurring in a young man. There was no defect of the choroid. The iris defect extended to the periphery. Dr. Harlan referred to a case of complete absence of the iris and upward dislocation of the lens, the latter being partly opaque. In a case of upward dislocation, with normal iris, discission was followed by severe iridocyclitis and subsequent atrophy of the globe. In a case of complete dislocation into the vitreous of each eye he had extracted the dislocated lens with a loop, no reaction occurring and good vision being secured. Dr. Posey said that he had done a discission on both lenses of a boy 5 years old who had congenital dislocation upward and outward. Two needlings were necessary to remove

the lens in each eye. Although there was some reaction following both operations—due, probably, to a second needle which was entered into the sclera, posterior to the lens, in order to fix the same—the eyes recovered with clear media and excellent vision. A month after the completion of the last operation, however, the child suffered a traumatism in the left eye, as a result of which the retina was detached and iridocyclitis excited, causing the ultimate loss of the ball. Dr. Ziegler called attention to a case he presented to the section five years ago, in which he had secured excellent vision after discission. The absence of inflammatory reaction he ascribed to the laceration of the free edge of the lens capsule rather than the central portion. Dr. Risley avoided discission in these cases, as the rapid swelling of the lens which usually followed was prejudicial to the safety of the eye, because of the peculiar location of the lens in relation to the iris and ciliary body.

Dr. H. F. Hansell reported *two unusual forms of keratitis, probably rheumatic in origin*. He regretted the clinical division of keratitis, based upon the most prominent sign at the time of examination, and advocated classification according to etiology or pathology. The first case exhibited lattice-work, deep infiltration occupying about one-half of the cornea and accompanied by two superficial vascular ulcers. The infiltration was white in color, the lines separated from each other by unaffected clear tissue, and ended abruptly in healthy cornea. Later each line of opacity became permeated by a single blood-vessel. Several remedies were tried, but the symptoms did not improve until after the free administration of the salicylates and arsenic. The second case was one of the numerous forms of superficial punctate keratitis. About twenty-four small gray dots were scattered throughout the cornea and were located immediately below Bowman's membrane. The anterior chamber was deep and the tension raised. The prominent symptoms were excessive lachrymation and severe photophobia. Under eserine and hot-water bathing the spots were absorbed in a few days, and their disappearance was followed by an attack of acute scleritis requiring the salicylates for its cure.

Dr. James Thorington exhibited a boy, aged 12, with a *powder grain in the vitreous* of the right eye. The injury followed the premature discharge of a small cannon, and the grain of powder passed through the upper quadrant of the cornea, iris, and lens, and could be plainly seen in the anterior portion of the vitreous, moving upward

and downward with vertical rotation of the eyeball. In the left eye there was congenital cataract.

Dr. J. L. Borsch exhibited (by invitation) two vials containing specimens of the chloride of the new element *radium* of different strength of radio-activity, and detailed the tests now in progress in Paris in the treatment of superficial growths with the new substance. He cited a case of toxic amblyopia from sulphide of carbon, not relieved by other remedies, in which vision increased from one-eighth to one-third after radium had been applied five days. Its power to relieve pain was shown in a case of iritis and one of ophthalmic migraine. He cautioned against the use of too-high radio-activity in ocular disease. As to the claims made of the value of radium in restoring sight in cases of optic atrophy, Dr. Borsch said that its value could be determined only after a complete and scientific record was given of each case.

WILLIAM M. SWEET, M. D., Clerk of Section.

REPORT OF THE DETROIT OPHTHALMOLOGIC AND OTOLOGIC CLUB.

REPORTED BY WALTER R. PARKER, SECRETARY.

Regular meeting held October 6, 1903. Dr. Campbell presented a paper entitled *Episcleritis*. Published in full on page 517.

Discussion.—Dr. Maire gets his best results in rheumatic cases from the administration of sodi salicylat in large doses given in essence of pepsine. Atropin is indicated if pain is marked symptom. The cause is often obscure. Certainly it is some cause other than rheumatism.

Dr. Smith for many years has followed the atropin treatment. For the past twenty years he has used eserine together with potassium iodid. Now he uses sodi salicylat in large doses. About a year ago he began the use of pneumatic massage and has had good results. We must differentiate between episcleritis and scleritis. Adrenalin chloride will bleach the eye, but its use may be followed by severe pain. He is very cautious in its use in this class of cases. Many cases diagnosed in children phlyctenular conjunctivitis are undoubtedly cases of episcleritis. They look like phlyctenular conjunctivitis, but the nodules do not go on to ulceration.

Dr. Gillman as a student was taught that all cases of episcleritis were due to syphilis or rheumatism. Now he believes most cases

occur in high livers between the ages of 20 and 30 who have no history of syphilis or rheumatism. He gets the best results from sub-conjunctival injections of bichloride of mercury, five or six drops of a 1-1000 to 1-10000 solution injected every six or eight days. In one case in which he used pneumatic massage it failed.

Dr. Thuner thinks syphilis a frequent cause, when inunction of mercury affords the best treatment. Better to give one large dose of sodi salicylat than divided doses.

Dr. Remaud uses large doses of sodi salicylat in brandy. We hear much about large doses of sodi salicylat now and many think it a new idea. He wishes to read extracts from letters written by Dr. Lundy in 1888:

"For about three years I have used the salicylates with very gratifying success. In one patient the disease had existed for months. The sclera was so thinned at points that the pigment of the ciliary body and choroid showed itself. Under the use of the salicylates the patient was well in less than three weeks, but showed a slight tendency to relapse a couple of weeks later, but on resumption of treatment she recovered in a few days. Indeed, so certain has this course been that in three years no case of episcleritis has remained under treatment for a month, and every one which I have seen has been cured, and most of them in two or three weeks, or even less. I now use cocaine locally, and sometimes atropine also. In giving the salicylates I keep the patient well under the influence of the drug *all the time* till a decided change shows itself in the diseased parts. It is necessary to maintain the well-marked physiological action of the drug, and if this is not done the results will not be satisfactory. Indeed, I have had such success in treating this disease for the past three years that I feel no more concerned as to the result than if called upon to treat an ordinary case of acute catarrhal conjunctivitis. I have given as much as 200 grains of salicylat of sodi in twelve hours, but it is rarely that a patient needs or can take so much."

Dr. Goux thinks episcleritis is always associated with large doses of sodi salicylat. He has followed Dr. Gifford's rule of one grain per pound per day, given in brandy. The good results are probably due to depletion and dilation.

Dr. Parker has been especially interested in Dr. Lundy's letters. He thought the idea of very large doses of sodi salicylat new. But these letters show how far ahead of their time certain men are. Whether to use eserine or atropine depends on whether the uveal tract is involved or not. If it is not involved the portion of the cir-

cumcorneal zone between the inflamed area and the cornea will be well marked and free from congestion. In these cases eserine is safe.

Dr. Campbell believes acute episcleritis may be early manifestation of rheumatism. The cases of high living spoken of by Dr. Gillman are probable due to acute infection. He has not found syphilis a common cause, and thinks Dr. Smith is probably correct in believing many so-called cases of phlyctenular conjunctivitis to be episcleritis, especially the non-ulcerative type. Give all the sodi salicylat the patient will stand. It is hard to get a pure salt of sodi salicylat. Merks is undoubtedly the best.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

THURSDAY, OCTOBER 29, 1903.

John Tweedy, F. R. C. S., President, in the chair.

The president delivered his opening address, in which he briefly sketched the history of the society. He drew attention to several of the past presidents and made a feeling allusion to the recent death of one of the oldest members of the society, Mr. George Lawson.

Tumor of the Choroid in an Eye Suffering from Old Choroiditis.—This case was related by Mr. Nettleship. The patient was a female aged 24 who had lost the use of the right eye. The eye was quite blind and in a condition of absolute glaucoma. The eye was removed by Mr. Nettleship in 1894 and when last heard of six years later the patient was in good health. There was a doubtful history of tuberculosis in the family. The vision of the eye was defective when the patient was 15 years of age from detachment of the retina. There was a bulging in the ciliary region and as the eye was painful it was removed. There was a large staphyloma near the ciliary region on the outer side and corresponding to this internally there was an angiomatous sarcoma, the cells were round and oval and it was somewhat pigmented. This was surrounded by a stratum consisting of fibrous tissue in which there was much cholesterine. The optic nerve was atrophied and there were one or two outlying nodules. Probably hemorrhage was the origin of this.

Mr. J. H. Parsons thought the case was almost unique. Fuchs and Leber had collected cases associated with shrunken globes and definite cyclitic changes. He thought the condition suggestive of necrosis of the sarcoma.

Tumor of the Choroid Associated with Iritis.—Mr. J. H. Fisher described this case. The patient was a woman aged 52 whose left eye he had excised in October, 1902. Six years before, there was a cataract with detachment of the retina ascribed to a blow. The eye was removed on account of pain. A small vascular spindle celled growth was found near the entrance of the optic nerve. It was pigmented and hemorrhagic and showed some signs of necrosis. A column of sarcoma cells could be traced along one of the posterior ciliary nerves.

The speaker discussed the possible transmission of material from one eye to the other as in those doubtful cases where sympathetic disease has been said to follow similar conditions.

An Anomalous Case of Tobacco Amblyopia.—Major F. O'Kinealey described this case. The patient was an Irishman aged 42 with a specific history. He had lived in India nearly all his life and was a clerk. He had been a very heavy smoker, accounting for as many as 500 Burmah cheroots per month of the cheap and rank variety. The vision was only 4/60 and J. 18. There was a central defect in both eyes and a limitation of the fields of vision for white. There were several irregular shaped scotomata situated about the fields of vision. Tobacco and alcohol were cut off and strychnine and iron were given with pilocarpine. Four months later the vision was restored to 6/6 and J. 1 with glasses, though the fields were even more contracted and the multiple scotomata had run together into a complete ring, color perception was still defective. The speaker also cited another patient, a Eurasian, who from the same cause reduced his vision to J. 18 with loss of fields for red and green and yellow; in 2 months he improved to 6/9 and J. 1. The scotomata disappeared and color vision returned.

Mr. Lang referred to a statement made by Wingrave that he had observed a corresponding defect in hearing in patients suffering from tobacco amblyopia which had improved, with the vision, after giving up tobacco.

Mr. Nettleship commented on the unusual occurrence of a further reduction of fields while the vision was improving.

Mr. Holmes Spicer thought that a syphilitic retinitis might have had something to do with both cases, but Major O'Kinealey said there was not the slightest evidence of this condition being present.

Mr. Johnson Taylor said he had never seen deafness associated with tobacco amblyopia.

The Pathological Anatomy of the Plaques in Epithelial Xerosis.

—Mr. Mayou described this condition and drew his observations from six typical cases. The plaques were situated on either side of the cornea and covered with bubbles of Meibomian secretion. The Xerosis bacillus was found in five of the cases. Sections showed that they adhered only to the surface and did not penetrate. He gave his reasons for not considering these the cause of the disease.

The changes in the epithelium were those due to exposure and the superficial layer showed a well marked layer of keratin on the surface. Beneath this was a layer of keratohyalin. There was a complete absence of cells showing mucoid degeneration.

Mr. Mayou thought that the mucin cells were one of the most important factors in bringing about hydration in the normal conjunctiva and that therefore the essential change was keratinization of the epithelium due partly to exposure, and partly to deficient lachrymal secretion occurring in children of delicate health, and that the Meibomian secretion and organisms were simply adherent to the plaques owing to the altered surface tension due to keratinization of the epithelium and the absence of mucoid changes therein.

Major Herbert said that he had observed similar changes in other mucous membranes. He attributed these bad cases of xerosis to an absence of the mucoid cells, in the lining epithelium.

The following card specimens were shown:

Mr. G. H. Goldsmith—*A Case of Retinitis Proliferans.*

Mr. W. Adams Frost—*A Demonstrating Ophthalmoscope.*

Mr. R. W. Doyne—*A Case of Varicose Retinal Veins with Thrombosis.*

Messrs. Doyne and S. Stephenson—*A Case of Retinitis Circinata.*

Mr. W. H. Jessop—*A Case of Proptosis.*

C. DEVEREAUX MARSHALL.

CORRESPONDENCE.

CORRECTIONS OF THE PAPER ON "SOME FORMS OF IRREGULAR ASTIGMATISM, ETC."

EDITOR THE OPHTHALMIC RECORD:

Having noticed some seemingly careless errors in my recent paper in the October issue of the RECORD, which are calculated to confuse the reader, I beg to offer the apology that I was ill at the time before it was finished and lost track of my notes in the meantime.

In describing, on page 491, the method of proceeding when the cylinders are of opposite signs, I failed to state that after following the rule italicized, *the resulting cylinder is always plus*.

Thus, in the case given, the diagonal of the constructed parallelogram indicates a 1.50 cyl. at 175°. Now, 175° being equal to 2Y, and the cylinder being plus, the sphere is

$$\frac{+1.00 + (-1.25) - (-1.50)}{2} = -0.875s.,$$

and the axis $87^\circ = Y$.

The equivalent sought is therefore $-0.875s. \odot +1.50 \text{ cyl. axis } 87^\circ$, or, $+62s. \odot -1.50 \text{ cyl. axis } 175^\circ$.

That the diagonal indicates 175° in this case is simply a coincidence. For if my diagram be used to get the equivalent of, for instance: $+1.00 \text{ cyl. axis } 30^\circ \odot -1.00 \text{ cyl. axis } 140^\circ$, the two points on the circle of 1 D. will be at 80° , and 100° ($280 - 180$), and the resulting cylinder as indicated by the intersection of the little arcs is $+1.75 \text{ cyl. axis } 80^\circ$. But we have to halve the 80° and write: $+1.75 \text{ cyl. axis } 40^\circ$, and the completed equivalent is $-0.875s. \odot +1.75 \text{ cyl. axis } 40^\circ$, which, of course, is the same as $+0.875s. \odot -1.75 \text{ axis } 130^\circ$.

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THE TERMS ANTIMETROPIA, ANISOMETROPIA AND BRACHYMETROPIA.

EDITOR OF THE OPHTHALMIC RECORD:

Dear Sir: In the October RECORD there appeared two communications, one by Dr. Suter, another by Dr. Claiborne, in which rather vain endeavors were made to refute certain of my statements

concerning "*refraction terms.*" Permit me to briefly answer these gentlemen.

Both accept Donder's term of "*emmetropia*" as very satisfactory, definite, and beyond reproach. Very good indeed. Now Donder's conception of "*emmetropia*" as regards the *coining* of the *terms*, was as follows: What *relation*, as to position, *does* the *focus* for *parallel lines* bear to the retina (the eye at rest) and *not* what relation does the *retina* bear to the focus. As to refractive errors, which way must *this* focus (*apparent* or *real*) for parallel lines be shifted so as to be just "*at*" the retina—*forward* or *backward*? Again, in these errors does the *focus* (*apparent* or *real*) for incident parallel lines fall *in front of* (short of) or *behind* (beyond) the *fixed screen* (retina)? Is it not more logical to endeavor to bring a *changeable point* (focus) *into relation* as to *position* with a *fixed screen* (retina) than to try the "opposite"?

On the above ideas these various *disputed* terms are founded. To these ideas I have *adhered* and *reverted*. Now, therefore, as Drs. Suter and Claiborne *accept* emmetropia, they can not but help accept the points in my original article (published in the August Record).

Priority was *not*, as Dr. Claiborne thinks, an issue. *None* was ever claimed. Due credit in this matter *was fully accorded* to Dr. Claiborne.

If both gentlemen will *again carefully* read the original article, they will *then* clearly see that their objections are surely *only apparent* and *far from real*. Furthermore, they will also readily see that in some instances I was *misquoted*.

GEO. F. SUTER, M. D.,
No. 103 State Street, Chicago.

ABSTRACTS FROM CURRENT OPHTHALMIC LITERATURE.

BY FRANK C. TODD, M. D., MINNEAPOLIS, AND EDWARD

A. SHUMWAY, PHILADELPHIA.

For the Extirpation of the Lachrymal Sac.—Dr. Arnold Knapp (*Archives of Ophthalmology*, July, 1903,) gives the following instructions:

A. 1.—Chronic purulent dacryocystitis; if of long standing and antiseptic treatment has not succeeded in curing the suppuration or if the sac is dilated. In this group of cases the great danger to the eye in possible corneal affections should not be lost sight of.

2.—Repeated attacks of acute dacryocystitis with abscess.

3.—Whenever the sac is dilated whether the contents can be expressed or not.

4.—Lachrymal fistula.

B. Local or general anæsthesia may be employed, the former being suitable only in the absence of acute inflammatory conditions. The incision begins just below the internal canthal ligament and passes down and out along the prominent orbital margin for from $1\frac{1}{2}$ to $2\frac{1}{2}$ cm. through the subcutaneous tissue and the anterior fibers of the aponeurosis until the sac itself is exposed.

Hemorrhage can generally be thoroughly controlled by a suitable introduction of the retractors and by compression. The sac is then isolated by blunt dissection from its inner wall; proceeding upward the cupola is freed and the sac can be more or less lifted out of the fossa. The outer surface, usually more adherent, has to be separated by cutting with a pair of small, blunt scissors, the attachment above and outward to the canaliculi being carefully separated.

The sac is cut off as low down in the lachrymal canal as possible and the canal is thoroughly curetted with a small spoon. A careful inspection is now made of the walls, and especially of the roof of the lachrymal fossa, with a view of detecting any remaining islet of mucous membrane, granulations, inflamed periosteum, or carious bone. These possible complications must all be properly met and radically treated. If the bone on the inner wall (lachrymal bone) should prove to be diseased and superficial curetting be deemed not sufficient, a free opening should be made right through this into the nose. This enables the removal of the diseased bone and also insures proper

drainage, the opening entering the nose in the anterior part of the middle meatus just below the head of the middle turbinal.

The operation is concluded by the exact approximation of the wound edges with two or three sutures, and the cavity is obliterated by proper pressure, and this pressure must be kept up in the dressings for the next few days.

On Recurrent Formation of Vesicles on the Cornea and Keratogias after Injuries of the Surface of the Cornea.—Dr. W. Stood, Barmen., translated from *Arch. f. Augenheilk.*, xliii., 1 (1901), by Dr. Ward A. Holden (*Archives of Ophthalmology*, January, 1903).

Among about forty thousand cases of eye diseases he has recognized this clinical picture sixty times.

In the beginning there is a superficial injury of the cornea usually caused by a sudden, rather blunt force. The result is a more or less extensive scraping off of the epithelium. The membrane of Bowman so far remains uninjured, the injury heals in a few days, and the patient believes that the recovery is to be permanent. There is neither pain nor inflammation, and vision becomes normal again. After some weeks, or even as long as six months, the patient experiences pain on awaking and feels that he can not open the eye or raise the upper lid, which seems to be adherent to the ball. If the eye is forcibly opened considerable pain is caused, lachrymation ensues, there is photophobia, and winking is painful. After half an hour or an hour the symptoms subside and the patient may be able to take up his usual work. Examined at this time, a clear vesicle will be found beneath the epithelium, or a slight displacement of the epithelium at the sight of the previous injury. Later in the day often nothing abnormal is to be found. As a rule there are recurrences after intervals of varying length, sometimes as long as three to six months, with eventual recovery. The intervals are frequently broken by mild attacks of pain in the morning, though sometimes the patient is even at this time free from annoyance.

From my observations I have concluded that the process is not a neuritis of the nerve-endings in the corneal epithelium with consecutive trophic disturbances, as many writers maintain. I would seek the explanation in the anatomical relations of the deepest cylindrical layer of epithelium, which, according to Rollett, Lott and Langerhans, adheres to Bowman's membrane by means of little processes which pass into the clefts and furrows of the membrane. In the forcible injury the entire epithelium is stripped off for a distance and perhaps Bowman's membrane is crushed in its anterior layers, so that

the new epithelial cells pushing in from the margins of the defect find an altered base upon which to rest, and their adhesion to it is less strong. The new-formed epithelium rather rests simply upon Bowman's membrane, and at night it becomes attached to the lid, and is loosened and its nerve-endings injured when the lids are opened. There follows then a passage of liquid from the parenchyma of the cornea through the nerve canals in Bowman's membrane so that a vesicle is formed.

If the vesicle is large, the overlying epithelium is so altered in its nutritive relations that it breaks down. If small, when the eye is opened the subepithelial transudation is absorbed.

In these cases I can heartily recommend the treatment with salves and massage, and I believe that we need not longer resort to the sharp spoon, the galvano-cautery, puncture of the anterior chamber, or excision of the affected portion of the cornea.

Periscopic Lenses.—A. S. Percival (*Archives of Ophthalmology*, July, 1903,) gives the following table for grinding of periscopic lenses:

POWER.	ANTERIOR SURFACE.	POSTERIOR SURFACE.
— 1 D	+5.5 D	— 6.5 D
— 2 D	+5 D	— 7 D
— 3 D	+4.5 D	— 7.5 D
— 4 D	+4 D	— 8 D
— 5 D	+3.5 D	— 8.5 D
— 6 D	+3 D	— 9 D
— 7 D	+2.5 D	— 9.5 D
— 8 D	+2 D	—10 D
— 9 D	+1 D	—10 D
—10 D	Plane	—10 D
—12 D	—	—12 D
—14 D	—	—14 D
—16 D	— .5 D	—15.5 D
+ 1 D	+ 6 D	— 5 D
+ 2 D	+ 8 D	— 6 D
+ 3 D	+10 D	— 7 D
+ 4 D	+12 D	— 8 D
+ 5 D	+13 D	— 8 D
+ 6 D	+15 D	— 9 D
+ 7 D	+16.5 D	— 9.5 D
+ 8 D	+17.75 D	— 9.75 D
+ 9 D	+19.5 D	—10.5 D
+10 D	+21 D	—11 D
+12 D	+23 D	—11 D
+15 D	+27 D	—12 D

The Mental Derangement which is Occasionally Developed in Patients in Eye Hospitals.—Dr. Charles J. Kipp, Newark, N. J. (*Archives of Ophthalmology*, July, 1903), reports twelve personally observed cases, ten following surgical and two after traumatic injuries. All of the patients were poor, some of them paupers, and did not belong to the educated class. They were all treated in the wards of eye hospitals, some in darkened, but the greater majority in well-lighted, cheerful rooms. Some had been alone, but most of them had been in rooms with others; some were confined to bed, others were dressed and were sitting up and walking about the wards. Only one had both eyes covered when the mental trouble set in. All of the others had either only one eye covered by a shield or had both eyes open when the first symptoms showed themselves. Some had good sight in the uncovered eye, the others had more or less impaired vision in it. Some came from the city, but most of them from some distance. Both sexes were represented, but males predominated.

The youngest patient was about 30 years of age, the majority were over 50. All were in good general health, and were not suffering pain in their eyes when the outbreak occurred. Most of the cases had been in the hospital more than a week and some only a few days. A solution of atropine had been instilled several times daily, but in a few no mydriatic of any kind had been used before the outbreak.

Dr. Kipp quotes Sichel as the first having called attention to these psychoses occurring after cataract operations, his cases (eight) all being old people. He speaks of the patients being "depayses."

Schmidt-Rimpler calls this mental state "paranoia hallucinatoria," objecting to the term delirium. They have never seen this complication in educated people.

Dr. Harlan is quoted as never having observed mental derangement if he had treated these patients at their homes; he therefore calls it home-sickness, nostalgia. He thinks that these psychoses are the result of a change in environment and to increasing longing to get away from the new surroundings.

Dr. Kipp records complete recovery from the mental trouble in all cases in which he could return them to their homes immediately after the outbreak. A considerable improvement followed having members of the household stay with them and by transferring them to other quarters.

Double Optic Neuritis Complicating Whooping Cough.—William E. Gamble, M. D., Chicago (*Archives of Ophthalmology*, July, 1903), finds in literature reports of three cases of optic neuritis complicating

whooping-cough. He gives the full report of these cases in addition to the report of his own case, and also includes an abstract of a case of ischemia of the retina by H. Knapp. Cases reported were those of Alexander, Jacoby and Callan.

Conclusions: 1. Optic neuritis complicating whooping-cough seems to occur most frequently in girls (four cases, all girls).

2. It occurs with or without evidence of cerebral complications.

3. Vision may or may not be disturbed.

4. Prognosis as to sight good when no cerebral complications exist.

5. That optic neuritis may result from direct action of toxins of pertussis upon the head.

On Sclerosis of the Choroid with Secondary Degeneration of the Retina.—Dr. Georg Levinsohn, Berlin, translated by Dr. W. A. Holden (*Archives of Ophthalmology*, January, 1903). Clinical observations on changes in the choroidal vessels have hitherto rarely been made, because of the difficulty or even impossibility of recognizing slight alterations in vessels that are covered by a membrane. Furthermore, affections of the choroid usually soon involve the retina also, which loses its transparency and prevents an accurate examination of the choroid. Therefore the observations hitherto made of changes in the choroidal vessels visible with the ophthalmoscope have been limited to the marked changes which age brings about, namely, sclerosis of these vessels.

Dr. Levinsohn gives his observations of a patient as follows: "The pupils are slightly irregular in form and react sluggishly to light in convergence. In both lenses are slight senile changes limited to the equator. The posterior portion of the vitreous is free. The condition of the fundus also is nearly identical in both, so only the left fundus need be described. The disc has a red color, but on the whole appears pale. The veins are slightly constricted, the arteries markedly so. About the disc the fundus presents the picture of advanced atrophy of the choroid. This may be divided into three zones. The disc is surrounded by a narrow light zone, yellowish-red in color, broken below by a small patch of normal red color. To the macular side is a light red area, about 3 p. d. in diameter, whose center, corresponding to the macula, appears dark red. To the nasal side and above and below the disc are large white or yellowish fields, between which isolated bits of red fundus can be seen. The limits of

these white fields and the light red macular area are characterized by brown pigmentation of the choroid. There then follows a broad circular zone reaching to the equator, which is noticeably lighter than the normal fundus, and in it the choroidal vessels are clearly seen enclosed in more or less intensely white sheaths, sometimes, however, bordering one side of the vessel only. At some points the blood column is no longer visible and the vessel is indicated by a white stripe. The arrangement of the various vessels is manifold. Occasionally white-sheathed vessels or white stripes pass over into normal red vessels; the latter then are mostly very tortuous.

The white-sheathed vessels can be followed into the circumpapillary zone, and in the other direction out beyond the equator. Here and there, besides the white fields, small areas of white color are visible, into which usually a small vessel enters. It is noticeable that the vessels entering the venae vorticosae exhibit the same changes, though in lesser degree. The twigs coming from the anterior part of the fundus and the main trunks have a normal appearance, but the branches posteriorly mostly have white sheaths. From the equator forward the fundus has a fairly normal appearance, except for the presence of small round atrophic choroidal patches.

Abducens Paralysis. Seggel (*Münch. med. Wochensh.* No. 18, 1903,) reports a case of bilateral paralysis of the sixth nerve, with paralysis of lateral movements. The patient was a shoemaker, 62 years old, who came for treatment of choked discs. In the course of the disease diplopia appeared, and two and a half months after the first consultation the following conditions were found: Paralysis of the right abducens nerve, with consecutive paralytic convergent strabismus; paralysis of lateral movement toward the right, *i. e.*, the left eye did not follow the finger toward the right. The movement of the left eye inward when the right eye was closed was not normal, but was present, and was perfectly normal in convergence. As right-sided facial paresis with lagophthalmus appeared later, a diagnosis was made of tumor of the pons in the region of the abducens and facial nuclei, with pressure symptoms in the cerebellum (vertigo). During the following month left-sided abducens paresis, right trochlear and hypoglossal paralysis, and bilateral optic atrophy were added. Shortly afterward exitus letalis. The autopsy revealed a solitary tubercle in the upper part of the pons, below the floor of the fourth ventricle. Seggel assumed that the tumor began in the nucleus of the right abducens, involved the knee of the facial, and finally the left abdu-

cens. Below the right hypoglossus nucleus, and above the trochlear nucleus were affected, while the *oculo-motor nucleus* was free. Consequently the limitation in the movement of the *left* eye toward the right was a paralysis of lateral movement, and not a paralysis of the internus, a confirmation of Bernheimer's results that processes in the abducens nucleus cause loss of movement of the contra-lateral internus and associated paralysis of lateral movement; as, according to Bernheimer, "at the same time the contact-connections between the ganglion-cells of the abducens are destroyed, which normally influence the nucleus of the internus through the posterior longitudinal fibers." Seggel concludes further that nuclear paralysis of the abducens can only be made with certainty when paralysis of lateral movement toward the same side is present, while in simple paralysis of the abducens (as frequently found in connection with rheumatism), disease of the nucleus may be excluded. Seggel calls attention to the fact that abducens paralysis is often the first symptom of brain tumor, even when this is not in the vicinity of the nucleus, as the nerve trunk is readily compressed by the increasing cerebral pressure in its long course at the base of the brain.

The case shows, further, that in tumors of the pons the facial paralysis involves not only the branches to the mouth, nose and lips, but also those to the orbicularis and frontalis. (*Rev. in Wochenschr. f. Therapie u. Hyg. des Auges*, July 31, 1903.)

Eumydrin.—Goldberg (*Wochenschr. f. Ther. u. Hyg. des Auges*, August 13, 1903) has made experiments on the action of the new mydriatic eumydrin on the pupil and accommodation in Prof. Schnabel's clinic in Vienna. He found that a one per cent solution acts from five to eight minutes quicker than a 1-1000 solution of atropine, producing a dilatation of from 2.5 to 3 mm., and that its effect disappears toward the end of the second day, while that of the latter is present still on the fourth day. It acts more rapidly and thoroughly than homatropine solution of the same strength, and its effect lasts about twelve hours longer. In pathological conditions the mydriatic effect seemed to be about the same as that of one per cent atropine, but it is not so lasting. Moreover, the drug produced no increase of pressure or other untoward phenomenon either in the normal or diseased eye.

Primary Atrophy of the Choroid, with Sclerosis of the Vessels, "Atrophia alba Chorioideæ."—Cuperus (*Archiv. f. Augenheilk.*, September, 1903) reports the case of a man, 70 years old, whose central

vision had gradually failed since his 30th year. His eyes had never been inflamed, and hemeralopia had never been present. Syphilis was denied and the general health had been good. In the right eye vision was reduced to the ability to count fingers at 10 cm., eccentrically, and in the left to fingers at 25 cm. The visual fields were of normal extent, but showed an absolute central scotoma in each eye; colors were poorly recognized in the periphery. The pupillary reactions were normal. With the ophthalmoscope the fundus showed a striking white appearance of the central portion, including the papilla and macular regions; further toward the periphery it was light brown, and in the extreme periphery the normal red color of fundus was present. At the posterior pole the choroidal vessels were chalky white, and contained no blood, standing out prominently even against the white color of the fundus. Scattered through the fundus, especially along the retinal vessels, were deposits of pigment. The optic nerve was light gray in color, and was completely excavated. The retinal vessels were narrow and the smaller ones had disappeared. Exactly the same conditions were present in a brother of the patient, while another brother and a grandmother had become blind under the same circumstances, the vision having gradually failed at about the same age. For this condition Cuperus proposes the name of "atrophia alba chorioideæ." From retinitis pigmentosa, and "atrophia gyrata chorioideæ et retinae" of Fuchs, it is to be distinguished by the absence of hemeralopia and the difference in the fields of vision. From chorio-retinitis luetica, by the absence of areas of old inflammation in the retina and choroid, of vitreous opacities and changes in the lens or iris. Clinically it is notable for the marked involvement of the central portion of the eye-ground, which causes a reduction in central visual acuity and an absolute central scotoma.

Concerning Some Modifications of the Operations for Ptosis.—

While many cases of ptosis are due to complete paralysis of the levator palpebrae superioris, there are a certain number, especially of the congenital form, in which the condition is due to a relative insufficiency or a simple stretching of the muscle. In determining whether the levator still has some action, Lapersonne (*Arch. d' Ophthal.*, August, 1903,) places his hand upon the forehead of the patient in order to exclude any action of the frontalis. If the patient can still raise the lid, the levator functionates, and its energy is measured by the amount of cornea exposed. For paralytic ptosis Lapersonne thinks

that the best results are obtained by Panas' operation, the only objections being that the scars are apt to be prominent and that the application of the skin of the lid to the deeper surface of the forehead causes some desquamation of the skin from time to time. In some cases he has used a modification of Angelucci's operation, in which the tendon of the levator is attached to the frontalis by means of threads passed beneath the eyebrow. After having detached the tendon and fixed it by means of two threads, he makes a longitudinal incision above the brow, and joins this by a tunnel with the palpebral incision, as in the Panas operation. Through this tunnel the threads holding the levator tendon are passed and attached to the upper edge of the frontal incision; they may be drawn more or less tightly according to the case. The skin incisions are then closed by superficial sutures. He believes this method better than Motais' suggestion to use the superior rectus instead of the frontalis.

When the muscle is insufficient or too long, he advances the levator, performing the operation under a general anesthetic as follows: A metal plate is introduced into the upper cul de sac and a long incision made, 4 or 5 mm. above and parallel with the lid border, including skin and orbicularis. The edges of the incision are separated and the tarsus and the tendon of the levator are exposed. Two small vertical incisions are then made on each side of the tendon, down to the conjunctiva, and a strabismus hook is introduced beneath the tendon. Two sutures are passed through the tendon above the hook, one on the outer and one on the inner side of the tendon, the tendon is cut and the sutures passed through the tarsus 2 or 3 mm. above the lid margin and tied. The tendon is thus advanced and should attach itself firmly to the anterior surface of the tarsus. The operation may be completed by excising a piece of the skin and orbicularis from the lower flap and uniting the lips of the wound by superficial sutures. Lapersonne has had good results in four cases operated upon in this way.

Stellate Cauterization of the Cornea.—Pechin (*Arch. d'Ophthalmologie*, August, 1903,) strongly recommends Dianoux's method of cauterization of the cornea in total or partial staphyloma of the cornea with hydrophthalmus. In this method the actual cautery is applied in the form of radiating lines running from the center of the cornea to the limbus, while the anterior chamber is evacuated by puncturing the cornea at the center. Very little reaction is produced, and the operation may be repeated several times, until the eyeball is

reduced to normal dimensions. He considers it preferable to enucleation, which in this case is an unnecessary mutilation, and also to keratectomy, because it reduces the eye to normal size and shape. Subsequent tattooing will give it a normal appearance, while keratectomy requires the wearing of an artificial eye over the stump. He has used it also with success in a painful glaucomatous eye.

Intra-Ocular Tuberculosis. Dangers of Enucleation.—Rogman (*Annales d'Oculistique*, August, 1903.) has collected nine cases of intra-ocular tuberculosis in which enucleation was followed by meningitis and death, and two in which there was a local recurrence. Two of the cases were under his own observation, and he was able to make microscopical examinations of the affected eyeballs. In none of the cases examined was the sclera found free from involvement; sometimes there was a simple ectasis, but in other cases it was perforated. Rogman believes, while it is possible that the meningitis might have been a coincident condition, or that it was the result of migration of the tubercular process before the operative interference, that a third theory is also possible, viz., that the operation itself was the direct cause of the transportation of the germs from the eye to the brain. The fact that the sclera was involved in all cases would render possible the absorption of the tuberculous material by the open wound from the colonies opened by the operation. Therefore enucleation is not to be looked upon in every case as an operation free from danger, and we must consider certain contraindications which arise as soon as the microorganisms have passed beyond the limits of the eyeball, either along the optic nerve or through the sclera. In the latter case, examination has shown that it is not necessary to have perforation of the sclera, but only simple ectasis. Of course, those that occur in the anterior part of the eyeball are readily detected, but this is not true when the posterior part is affected. Hence operation should not be delayed until the tissues become disorganized. Rogman believes that if the eyeball is already perforated, enucleation should be performed only when the ectasis is recent, and situated near the cornea, so that the conjunctiva can be left adherent to the eye, some distance back of the staphyloma. In all other cases the more radical operation of exenteration of the orbit should be performed.

The Composition of the Aqueous Humor in Cases of Senile Cataract.—Uribe-Troncoso (*Annales d'Oculistique*, August, 1903), as the result of chemical analyses in nine cases of senile cataract, reaches the following conclusions:

1. The quantity of albumin in the aqueous humor does not increase during the formation of cataract, as has been believed.

2. In commencing nuclear cataracts he found a considerable increase in the saline components of the aqueous which did not occur in a commencing cortical cataract.

3. When the cataract is mature, the composition of the aqueous approaches the normal.

4. In hypermature cataract, analysis has shown an increase in the proportion of the organic constituents.

5. As two distinct physical stages exist during the formation of cataract, one of absorption of water and intumescence, and the other of loss of water and contraction, we can not admit that the increase in the quantity of the salt in the aqueous is the cause of the opacification in the first stage, for the osmotic current is always directed toward the medium which contains the most salt.

6. The remarkable increase in the proportion of saline constituents of the aqueous in two cases of commencing cataract leads us to believe that during the period of incipient cataract a removal of water is produced and a rapid dessication of the nucleus, and that when the nucleus contracts, cataractous changes appear in the perinuclear zone.

NOTES AND NEWS.

ITEMS FOR THIS DEPARTMENT SHOULD BE SENT TO
DR. BROWN PUSEY, 31 WASHINGTON ST., CHICAGO.

Prof. Ricardo Secondi, Genoa, Italy, died recently.

Prof. E. Pflueger, Berne, died September 28, aged fifty-seven.

Drs. Robert Sattler and D. T. Vail have been elected oculists to the Cincinnati City Hospital.

Dr. L. R. Culbertson has removed his offices to rooms 226-7-8 Masonic Temple building, Zanesville, Ohio.

Dr. Christian R. Holmes has resigned from the commission appointed to build the new city hospital of Cincinnati.

Dr. William A. Mann has been elected assistant clinical professor of ophthalmology and otology in the Northwestern University.

Dr. F. Gurney Stubbs was elected a professor of otolaryngology in the Chicago Eye, Ear, Nose and Throat College, October 9, 1903.

A series of editorials on "Some Mimicries of Eye Strain," by G. de Schweinitz, were begun in the *New York Medical Journal* and *Philadelphia Medical Journal*, of November 7, 1903.

The Ramsey County Medical Society has passed a resolution urging the St. Paul, (Minn.) School Board to prohibit pupils suffering from trachoma or any other infectious diseases of the eyes from attending the public schools.

To Test Eyes.—Henry Phipps, Jr., has sent \$350 to the First Ward Manual Training School, Allegheny, with a suggestion that the money be used in the examination of the eyes of the school children. He will add to his contribution a sufficient amount to secure treatment and the procuring of glasses for those who are found to need them.

Mr. George Lawson, consulting surgeon, Royal London Ophthalmic Hospital, died on October 12, in his seventy-third year. Of him the *London Lancet*, October 24, 1903, which has an extensive obituary

notice, says: "By the death of Mr. George Lawson the profession not only loses a most distinguished surgeon, but a most generous, large-hearted man, who was the true type of a Christian gentleman."

In an editorial in the *Chicago Record-Herald*, of September 28, 1903, we are told that "tobacco endlyopia and alcohol endlyopia" were recognized by oculists as diseases "the most insidious and difficult with which they have to deal," and "eye specialists unite in declaring that if endlyopia maintains its present ratio of increase it will not be more than a quarter of a century before it will be one of the common eye troubles."

Simon Pollak, M. D., University of Vienna, Austria, 1835, the oldest practitioner of St. Louis, a member of the American Medical Association, one of the founders of the Missouri State School for the Blind, who opened in 1861 the first eye and ear clinic west of the Mississippi, died at his home in St. Louis October 31, aged ninety. During the civil war he served on the United States Sanitary Commission. He was many times treasurer and once president of the St. Louis Medical Society. Dr. Pollak was one of the quartet of St. Louis veteran physicians, in whose honor a banquet was given by the medical profession of the city on April 14 last.—*Journal American Medical Association*, November 14, 1903.

The following is from *McClure's Magazine* for November, 1903, page 9. It will be noticed that the author, Cleveland Moffett, shifts the responsibility: "It is possible," said M. Curie, "that this property of radium may be utilized in certain diseases of the eye. Dr. Emile Javal, one of our distinguished physicians, who is blind himself, has given this matter particular attention, and he thinks that radium may offer a precious means of diagnosis in cases of cataract by showing whether the retina is or is not intact, and whether an operation will succeed. If a person blind from cataract can see the radium light as you have just seen it, then the eyesight of that person may be restored by removing the cataract. Otherwise it can not be restored."

In *The Outlook*, September 5, 1903, Frank H. Spearman, in an article on the "Life of a Locomotive Engineer," says: "Such a prosaic matter as taking water is a simple one in a fireman's duties. But let

us suppose that on a stormy winter day the spout chains are frozen, the train late and engineer impatient. Under such circumstances, and with an apparatus not so modern as that shown in the picture, a fireman jerked at the spout chains until they broke and the heavy iron spout fell, striking him on the head. A year after glaucoma, following the blow on his head, attacked his right eye. He gave it no attention. Meantime, he was promoted to be an engineer. Telling no one, he held his post until he was stone blind in the right eye, and in that condition he actually ran a passenger engine month after month. During the interval he successfully took all the tests for vision and color blindness *in that eye*; it was unfairly done, of course, but done. The deadly disease at length, through sympathy, attacked the remaining eye and he resigned. He knew he could deceive the doctors with one blind eye, but not with two."

An extremely valuable and unique addition to the library of the College of Physicians has just been made through the generosity of Dr. George W. Norris, consisting of three volumes containing the collection of colored eye grounds made up of the original drawings and notes of Professor Eduard Jaeger, of Vienna, from which the well-known "Jaeger Atlas" was produced. The drawings were all made by Jaeger himself, and each of them represents an exact and careful copy of an eye ground appearance as seen by him. This collection was sold after Jaeger's death by order of his executors, and was purchased by the late Dr. William Fisher Norris, first professor of Ophthalmology at the University of Pennsylvania, for \$2,400. Quite a storm of protest arose at the time from the medical profession in Vienna, who held that such valuable landmarks in the history of Viennese ophthalmology should not have been allowed to be taken from the Archives of the "Kaiserstadt." Dr. Norris has also presented one volume containing the collection of ophthalmologic drawings from cases seen in the practice of the late Dr. William Fisher Norris, 1873-1901. This volume is valued by the library at \$800, which is, perhaps, about one-half of the amount paid by Dr. Norris to the artists. (*American Medicine*, Nov. 11, 1903.)

Julian J. Chisholm, M. D., Medical College of the State of South Carolina, Charleston, 1850, died at Petersburg, Va., November 2, aged seventy-three. After studying abroad, he began practicing in Charleston, and by his early recognized ability rose to the professor-

ship of surgery in 1858. In the civil war he obtained the first medical appointment, and also treated the first wounded in the war (at Fort Sumter). He was the author of "A Manual of Military Surgery," which was the official text-book of the confederate surgeons. He resumed his chair in 1865, but removed to Baltimore in 1869, and was at once made professor of operative surgery and diseases of the eye and ear in the School of Medicine of the University of Maryland. He was also dean of the faculty from 1869 to 1874. In 1873 he gave up surgery and devoted himself thenceforth exclusively to his specialty, in which he achieved an international reputation. He was a most prolific writer, a skillful operator and a man of extraordinary energy. He was a born teacher. He was chairman of the ophthalmologic section of the International Medical Congress of 1887. The great work of his life was the founding in 1877 of the Presbyterian Eye, Ear and Throat Hospital, of Baltimore, one of the largest special hospitals in the country. In 1894, shortly after a trip to Europe, he was stricken with apoplexy and asphasia, and his active work ceased. He then gradually failed until his death.—*Journal of Amer. Med. Association*, November 14, 1903.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

CHICAGO, DECEMBER, 1903.

VOLUME XII. No. 12. NEW SERIES

ORIGINAL ARTICLES.

WHEN NOT TO PRESCRIBE CYLINDERS FOR ASTIGMATIC EYES, AND WHEN TO PRESCRIBE THEM FOR NON-ASTIGMATIC EYES.

BY N. C. STEELE, M. D.,

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I.

When Not to Prescribe Cylinders for Astigmatic Eyes.

Possibly the majority of us who prescribe glasses think that all astigmatic eyes that require glasses should have their astigmatism fully corrected. However optically true this general rule may seem, it is not good practice in all instances.

For cases of simple astigmatism of low degree, and of astigmatism of low degree combined with a low degree of spherical error, requiring lenses for distant use or for both distant and near use, the general rule of correcting all the astigmatism holds good.

The exceptions to this general rule, of which I shall write briefly, are those cases requiring for near use lenses of rather strong spherical power, and also those cases that, according to the usual tests, require a spherical power combined with a cylinder, axis horizontal.

Of course, the majority of the persons that furnish these exceptions to the general rule are presbyopes, especially hypermetropic presbyopes.

THE REASON.

We know that light rays passing obliquely through a positive spherical lens are not all converged to a point. The effect is similar to light rays passing through a spherocylindrical lens held with its surface at right angles to the source of the light rays. In reading or

doing other near eye work we nearly always look a little obliquely downward through our spectacle lenses. Hence our spherical lenses have a spherocylindrical effect producing, in this near use of them, mild artificial astigmatism.

The light rays, passing from the printed page obliquely through a spherical lens to the eye of the reader are converged more by the vertical than by the horizontal meridian of the lens. That is, the converging power of the vertical meridian is increased, thus producing the effect of a spherocylinder with the cylinder axis horizontal. The converging effect of the horizontal meridian is neither increased nor diminished.

THE PROOF.

You can prove the truth of this last paragraph in a moment. If you are emmetropic, put a -0.1 D lens in your trial frame and before one eye, shutting the other eye. Hold just in front of the trial frame a $+0.1$ D spherical lens and look at an astigmatic wheel-card. You will see all the spokes of the wheel plainly. Now begin to tilt the $+0.1$ D lens vertically; that is, on its horizontal axis. At once you notice the horizontal spokes begin to grow dim, while the vertical ones remain plain. The more you tilt the plus lens the dimmer become, first the horizontal spokes and then those near the horizontal ones, and soon only the single vertical spokes above and below remain plain. The effect is more pronounced if you use a stronger plus lens. As soon as the horizontal spokes begin to grow dim hold a -0.25 D cylinder, axis horizontal, in front of the plus lens, but parallel to the minus lens that is in the trial frame. This at once clears the wheel, bringing out all the spokes plain and black.

As you increase more and more the tilt of the plus lens, you will need stronger and stronger minus cylinders, axis horizontal, to neutralize the increasing converging effect of the vertical meridians of the tilted plus lens, and thus make clear the whole wheel. This experiment can be varied in many ways, but the general result will be the same. If you are not emmetropic, put into the trial frame the proper lenses to make you emmetropic, and proceed as before directed.

THE PRACTICAL LESSON.

The practical lesson to be learned from all this is that many cases with low degrees of astigmatism with the best meridian horizontal, or nearly so, should not have the astigmatism corrected, at least not fully corrected, in lenses intended for near use only.

I may add that this does not apply so appropriately to lenses that are to be used for all purposes, such as are generally worn by persons under forty years old. Nor does it apply to simple cylinders of low degree, nor to lenses in properly selected pantoscopic frames.

As will be readily seen, my suggestion applies especially to cases in which the usual refraction tests indicate the near use of spherocylinders with cylinder axis horizontal, because it is chiefly the increased converging power of the vertical meridians of spherical lenses and the spherical part of spherocylindrical lenses as used in near work that produces the condition here discussed. That the suggestion applies to strong cylinders with axes horizontal will be at once understood and needs no elaboration.

I estimate that a $+ .1$ D spherical lens as usually worn for reading and in the usual spectacle frame produces a cylindric (astigmatic) effect of about $.13$ D, and that a $+ .3$ D sphere produces a cylindric (astigmatic) effect of something like $+ .25$ D to $+ .50$ D. The amount of this effect of these spherical lenses depends on the relative positions of the head and book of the persons wearing the spectacles.

In prescribing near lenses for eyes that are astigmatic with the best meridian horizontal, I am guided by the foregoing suggestions and estimates. If the astigmatism is of low degree with best meridian horizontal, I omit entirely the cylindric element of the lens. In high degrees of astigmatism I omit a part of the cylindric element, thus under correcting the absolute amount of astigmatism shown to exist by the usual tests. In such cases I depend on the spherical lenses or the spherical part of the spherocylindrical lenses to correct all or a portion of the astigmatism; that depending, of course, on the amount of the astigmatism.

For instance, if I find an eye with astigmatism of $.13$ D with best meridian horizontal, that needs a $+ .75$ D spherical lens for reading, I prescribe the $+ .75$ D and ignore the astigmatism altogether.

If I find an eye with astigmatism $.25$ D with best meridian horizontal that needs a $+ 1.50$ D sphere for near use, I give the $+ 1.50$ D sphere lens, omitting any cylindric element. If the last case had double the astigmatism I would correct half of it, prescribing $+ 1.5 \odot + .25^{180}$.

If an eye is astigmatic $.50$ D with best meridian horizontal and needs a lens $+ 3.0$ D for near work, I prescribe the sphere only.

II.

Cylinders for Non-Astigmatic Eyes.

When there is hypermetropic astigmatism, simple or compound, with the best meridian vertical and requiring, of course, a cylinder with axis vertical to correct it, the full astigmatic correction should be given, even in mild cases. In those cases of astigmatism with best meridian vertical that require sphero-cylinders for near use the cylindric power should be increased over the amount of actual astigmatism present, the increase to be governed by the same general estimates given for the opposite condition, except you increase the cylindric power here, whereas you decreased it there.

Again, in prescribing strong plus spherical lenses (+ 3.D to + 6.D) for near use by eyes having no astigmatism, you can with advantage add a cylindric power of + .25 D to + .75 D axis vertical, because of the fact that looking slightly downward at the printed page through such strong spherical lenses a cylindric (astigmatic) effect is produced, requiring for its correction a cylinder with axis vertical. Much depends in these cases on the relative positions of spectacles, head and book of the reader.

I have been speaking of cases in which plus cylinders, spheres, and sphero-cylinders are indicated by the tests, but exactly the same suggestions apply to cases that require minus cylinders, spheres and sphero-cylinders.

When I speak of "horizontal" and "vertical" meridians and axes, I include with them the meridians and axes that are within a few degrees (say 5° to 10°) of these cardinal lines, the amount of obliquity determining to some extent the nature of the lens prescribed.

In writing this article I have had in mind the users of spectacles, and spectacles of the usual kind.

I know that eye glasses are often worn with the tops of the lenses tilted slightly forward, and this changes the situation, as is plainly indicated, and needs no discussion here.

I have thought best not to enter into minute details, because I think that every refractionist can easily apply my suggestions to the varied cases that he has to deal with. I am aware that the advice herein offered does not have a wide range of application, but I am sure that in properly selected cases it will be helpful.

So far as I now remember, I have never seen in any book or journal this subject discussed. At least, I have not noticed that special attention has ever been called to it.

CHATTANOOGA, TENN.

IS DOUBLE OPERATION FOR SENILE CATARACTS JUSTIFIABLE?

BY HOWARD F. HANSELL, M. D.,

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The correct answer to this question can not be given without consideration and I bring the subject to your attention with the hope of hearing an expression of opinion as well as to state my own views. A review of written authority reveals but little information. The question is usually dismissed, if discussed at all, with the bare statement that double operation should not be performed, and this dictum is in most cases an expression of the writer's practice rather than a decision reached after careful thought.

The reasons that suggest themselves against the procedure or its contraindications are the danger of infection during or after operation, the presence of lachrymal disease, constitutional weakness engendered by nephritis, diabetes, syphilis or other dyscrasia, hemophilia or any idiosyncrasy, and finally the patient's unwillingness. It is also claimed that ignorance of the patient's mental and physical stamina and of his recuperative powers is also a contraindication.

I believe the double operation is justifiable under the following conditions: That the vision of each eye is so diminished that the patient is debarred from his usual occupation and is consequently unable to earn a living; that both cataracts are ripe enough to warrant extraction, or, in other words, that either lens might be operated on with equally good chances of a favorable result; that nothing in the patient's mental or physical state might militate against recovery; that the cataracts are not secondary to local or general disease; that the extraction of the first lens was accomplished without accident or indications of complications should operation on the second eye be attempted.

The value of the procedure is undoubtedly great in carefully selected cases. Its advantages are that the patient is subjected to one operation instead of two, his recovery occupies ten days instead of twenty, he has binocular vision and the correction of the refraction is simplified. I think the danger of subsequent inflammation is not intensified and that of sympathetic ophthalmitis is lessened. Recovery is not prolonged. The after treatment of both eyes does not essentially differ from that of one eye. The pain is no greater in

Read before the Section on Ophthalmology, College of Physicians, Philadelphia, November 18, 1903.

the double than in the single operation and the process of healing of the wound of the one eye is not, as far as I can judge, at all hindered by operation on the other eye. The surgical shock is hardly worth considering. The real suffering consists in the apprehension and nervousness preceding and the confinement to bed following operation—practically the same whether both eyes or only one is involved. The awful calamity of failure of both operations is no greater because the operations were performed at one sitting than if one failure had preceded the other.

I have performed the double operation five times only, yet the subsequent history of these cases inclines me to increase the number as suitable opportunities arise. The first case was that of a woman eighty-five years of age, who urged the double operation that she might have the use of both eyes in the shortest lapse of time; the second, the details of which are not at hand presented nothing noteworthy; in the third, extraction of the one lens was so smooth and satisfactory that I yielded to the patient's request that the second eye should be operated on; the fourth and fifth were unmanageable patients, aged seventy and eighty-three years, respectively, for whom general anesthesia was necessary. In order to avoid delay and the annoyances incident to the operation on the first eye, both lenses were extracted in each patient. In all the cases recovery ensued without complication and the history of the healing contained no intimation that the conditions would have been improved had the procedure been limited to the extraction of the lens from one eye only.

NOTES ON SOME OF THE NEWER METHODS AND DRUGS
IN OCULAR THERAPEUTICS, METHYLBROMID OF
ATROPIN, DIONIN, SUBCONJUNCTIVAL
INJECTIONS, JEQUIRITOL.

ALBERT B. HALE, M. D.,
CHICAGO.

There are two good reasons why, in diseases of the eye, we are inclined to resort to new drugs and methods different from those well tried and commonly adopted; one is that, in addition to the fact that classical treatment does not always cure, we sometimes tire of a routine of boric acid, zinc, cocain, atropin or eserin and are, therefore, incited for the novelty of it to see whether another drug will not accomplish more. The second reason is that conjunctiva, cornea and intraocular tissues lend themselves most readily to local drug action,

and the effect or influence upon them of minute doses topically applied can here be more carefully studied than on any other organ or tissue in the body, and that, too, with but little danger of general absorption or systemic poisoning.

It is difficult to keep trace of all or many of the newer pharmaceutical preparations, but most of them soon lose their identity, or become merely the favorite of some practitioners while not at all displacing the older and essentially important drugs.

At intervals, however, we do find a novelty which, when carefully tried, proves a genuine addition to the physician in his efforts to cure. In practice, one's own experience must be the best guide to the continuance or abandonment of a drug or method, and I have in my own work finally and permanently adapted the following substitutes or supports to older therapeutic resources.

METHYLBROMID OF ATROPIN. (MERCK.)

My attention was first called to this drug by a report of Vaubel's in the *Wochenschrift fuer Therapie und Hygiene des Auges* for October 9, 1902. The drug contains 20.84 per cent bromid, is soluble in water, weak alcohol, but insoluble in strong alcohol, acetone and chloroform. Its atropin constituent is about that of the sulfate, and may be used in the same strength, that is, a 1 per cent solution. Why it is that atropin combined with such a base has a similar but shorter action I can not say, but there seems no doubt from Vaubel's experiments that even its systemic effect is less pronounced. Since then that tireless expounder of new drugs, Darier, has written of its use in *La Clinique Ophthalmologique*, 1902, No. 21, largely in confirmation of the German.

I have not carried my own experience with the drug so far as to tell its effect on heart, pulse or other internal organs, being quite willing to accept the conclusions of others on the matter, but I have been fortunate enough to test its effects on a rather large number of cases of both inflammatory and refractive character, and the more I use it, the better I like it, and the oftener do I resort to it as a routine measure.

Any analog of atropin serves two purposes: first, to act on the iris, and, second, to paralyze the ciliary muscle. If the first is more important, we call it a mydriatic; if the second, a cycloplegic, and we seek these effects either to overcome inflammation in the uveal tract and to keep the eye at rest, or to get a view of the fundus through a larger pupil, or to destroy accommodation so as to estimate the true refractive condition of the particular eye under examination.

I can not say how many new drugs have been during the past decade offered to us for one or the other of these purposes, but nothing seems to act so substantially as a cycloplegic as atropin sulfate; duboisson is less used; scopolamin (or hyoscin) takes second place, while homatropin, trusted by some, is distrusted by many, and I dare say it is rated more as a temporizing drug for our hurried American life than as a genuine cycloplegic. As a mydriatic it is to be feared; it is of too prolonged action, it is inferior in practical application even to cocain, and it is, in my opinion, completely superseded by euphthalmin for all diagnostic tests. It remains to be seen whether any drug can be compared with atropin in radical effect, while at the same time allowing us to avoid the two great disadvantages of the sulfate, slowness of action and unnecessarily prolonged action. For this new combination of atropin, the methylbromate, it is claimed that its action is quicker and that its influence is noticeably less prolonged than that of the sulfate. I suppose I have used it in over 500 cases of every character, and I must say at the outset that in genuine iritis I do not trust it; partly because there is no need of temporizing—we know what the sulfate will do—we must carry on its action for days and days, and to experiment when the tissues of the eye may suffer immediately therefrom is folly. I have no proof that it will not act as thoroughly, but I have proof that it will not cover such a great length of time, and I therefore discard it in these cases. Conditions are different when we treat corneal inflammations where the iris is only irritated in sympathy but not at all inflamed. Here I have found the methylbromid very serviceable, as it dilates the pupil well, keeps the eye at rest, and if it be decided that continued mydriasis is unnecessary, the iris may then be released within a few hours. This brings us close to the question as to how radical an influence the drug exerts upon the ciliary muscle, because in threatened iritis a weak drug will be misleading or even dangerous, and valuable time may be lost if we do not at once affect the iris to its fullest extent.

My experience began with a patient, a young woman of 22, for whom I had prescribed glasses two years ago under full atropin cycloplegia. This time she had suspicious symptoms of a mild uveitis in one eye, and partly to make sure of my diagnosis, partly to confirm my earlier prescription of lenses, I used the methylbromid 1 per cent solution in each eye twice during twenty-four hours. To my surprise, the refractive result was exactly the same as it had been under the sulfate of atropin two years ago. I have not, however, had such reports in all other cases in which comparisons have been made,

for the effect of the sulfate seemed to be somewhat stronger than that of the methylbromid, and I have, therefore, in my own routine, established the rule that the sulfate must be used for the most accurate estimation of the refraction. I can not give statistical tables of comparison, but I am convinced that this newer salt ranks below the sulfate, is equal to scopolamin (1.500) or hyoscin, and is superior to homatropin.

As to the onset and duration of its action, I can be more precise. The following tests illustrate this point, and can be repeated with probably the same conclusions as often as may be wished. Two boys, aged nine and seven, were to have their eyes examined. Into each left eye I dropped at once two drops of 1 per cent solution of atropin sulfate. At the same time into each right eye I dropped the same quantity of the same strength of the methylbromate. In the elder boy there was developed, after twenty minutes, a slight mydriasis of the left eye; the right eye seemed to be behind its fellow about five minutes till full mydriasis was reached in forty minutes (in the left eye there was discovered a slight congenital cortical cataract, but I think this condition had no influence on the mydriasis). In the younger boy, beginning mydriasis was evident twenty minutes after instillation and no real difference could be detected between either eye. So uniform have been my findings in this respect that I can acknowledge no difference in rate of action that can be trusted as a guide. Individual idiosyncrasy will explain any variation that may be detected. The case is quite otherwise, however, when we examine the duration of the mydriasis. The following will serve as a type of my experiments. Into the eyes of a healthy young woman of twenty-two I ordered one drop of the 1 per cent solution twice a day. There was full mydriasis and probably complete cycloplegia the next morning. After twenty-four hours there was some accommodation; on the second day she could again read. In another case, with some fundus changes which I was studying, I obtained mydriasis and cycloplegia by three drops fifteen minutes apart at the end of one hour; the next day (twenty-four-hour interval) mydriasis was nearly gone and accommodation seemed restored. Here again I have made no statistical table, preferring to show clinical experience rather than too precise an estimation, but this result has been so frequently repeated that I have learned to depend upon the influence of the drug for not more than twenty-four hours, or, in another sense, I am warranted in assuring a patient that at the most he will be debarred from work only two days, while it is possible that at the end of one day the paralysis

of accommodation will be noticeably lessened. This makes the drug much quicker in its disappearance than the sulfate, twelve to twenty-four hours quicker than scopolamin, and somewhat slower than homatropin (with or without cocain).

My experience convinces me, then, that the methylbromid of atropin used in a 1 per cent aqueous solution is (1) a trustworthy mydriatic and a good cycloplegic in refraction; (2) an untrustworthy mydriatic in iritic, but a comfortable one in corneal inflammations; (3) its action begins at about the same time as the sulfate, but has disappeared from two to six days before the latter; (4) it should rank below the sulfate for complete action, but equal or above all other drugs.

DIONIN.

Wolffberg (Breslau) not quite four years ago experimented with this drug, which is a chlorid of ethyl morphin, and had been previously used in internal medicine as a substitute for the sulfate of morphin and for codein. It is easily soluble in water. His first observation was confined more particularly to the rather unexpected action upon the lymph circulation, and to one who applies it for the first time this action is really startling. The lids grow red and swell, the conjunctiva becomes puffy, edematous, and if the patient is very susceptible this swelling is so extreme that the cornea is barely seen through the pit in the center of the conjunctiva. The sensation is at first painful, burning; then a feeling of warmth comes on, followed by an analgesia that may subdue the pain even of a keratitis or iritis. This analgesia may last an hour or less, but all signs and symptoms disappear, to leave the eye as it was before. Accidental sneezing noticed in some cases is due to escape of some of the drug into the nose.

There is no doubt about the startling effect of dionin. It is ophthalmologic fireworks, but the practicing physician is more interested in learning what he can add to his means of cure than in making an impression upon his patient. Wolffberg's attention was called less to the analgesic (not anesthetic) effect of dionin than to its influence on the lymph circulation, but Darier noticed and took advantage of the former. Wolffberg's idea was to influence nutrition, Darier's to subdue pain and to supplement the action of other drugs. Any one reading Darier's "Ocular Therapeutics" will be led to wonder and will be inclined to blame himself that a drug so valuable, so efficacious, so indispensable, has been so little known outside of a few French and German clinics.

I have had no inclination to test Wolffberg's claim about dionin

after operations on the eyeball, although I am willing to believe that it may encourage primary union of corneal section, nor do I wish to discredit Darier's enthusiasm for the drug in so many conditions, but my own experience leads me to give it a much more modest place, and while I consider it an undoubted addition to the treatment table, I am not yet convinced that we should suffer from lack of it.

The unique effect of dionin is the lymph congestion of the conjunctiva, and I have no doubt but that this encourages the absorption of drugs like atropin and eserin so that they may act quicker and sometimes more powerfully upon the iris. I may illustrate this in the following case: A young woman of twenty, with a central corneal abscess, showed a decided iritis with pain, which atropin alone (even in crystals) was unable to subdue; the addition of a 5 per cent watery solution of dionin to a 2 per cent atropin solution checked the pain and encouraged the iris slowly to contract, but the adhesions were so firmly united that the synechiae could not be severed. So much has been said by Darier and Wolffberg on this point that I have no right to report my experiences further. The disadvantages of the drug lie in the fact that a tolerance is very soon established, after which the drug seems relatively inert. But does this lymph congestion result in any permanent good? I myself can not say that it does. It is altogether transient; if we find certain conditions that will be relieved by temporary stimulation of the circulation, then we may for once or twice resort to dionin, but no permanent curative power has been seen by me. The drug is simply an adjuvant to others, helpful in emergency, to be sure, and for that reason to be retained, but not trustworthy, like cocain. I do not overlook such reports as that of Granclement, for instance, who, in the *Bulletin de la Societe de Science Medical de Lyons* for July, 1902 (cited in *Archives of Ophthalmology*, September, 1903), claims that dionin cured a detachment of the retina, but this is such an extraordinary exception that it proves nothing and can not displace the older methods of treatment, or disturb the view of the skeptic concerning the efficacy of any treatment whatever.

The same argument applies to the use of dionin as an analgesic. Dionin is hardly a local anesthetic—its action is more central: it subdues pain, but not to a marked degree does it destroy local sensation. I have been pleased with its temporary use to calm a patient suffering from an iritis, or iridocyclitis, or bulbar pain in general, but even then, though it may allow us once or twice to avoid the morphine needle, it finally proves useless if the pain is not checked by other means.

Certainly, then, let us retain dionin, as powder, as 1 per cent or 5 per cent solution, alone or with another drug, but let us not forget that it is always the other drug on which we must rely.

SUBCONJUNCTIVAL INJECTIONS.

It is a little over ten years now since this method was proposed as a means of attacking locally different ocular inflammations. At first, mercuric salts were used under the assumption that an antiseptic could thus be more directly applied to an infective process, but from laboratory and clinic this theory received a denial and the simple antiseptic explanation was abandoned, although experiment was still directed toward finding some drug that would intensify or hasten the mechanical influence of the simple injection.

The discussion of the method is detailed in "Ohlemann's Ocular Therapeutics" (Oliver's Translation, P. Blakiston's Son & Co., 1899, page 27, et seq.) and in *Die Neueren Augenheilmittel*, Ohlemann, Wiesbaden, 1902, p. 58. The Germans seem to have lost enthusiasm, although occasionally elaborate reports of clinical cases (*Klinische Monatsblätter fuer Augenheilkunde*, December, 1902, p. 427, and October, 1902, p. 247—Hetol) show that the method is still in use. In the seventy-fourth session of the Congress of Naturalists and Physicians, Wessely (Würzburg) has an elaborate examination of the physiologic action and concludes that "this is due neither to direct osmotic influence of the internal fluids of the eye, nor to stimulation of lymph circulation or attraction of leucocytes, but that the injections are a local irritant, producing in the vessels of the ciliary body a hyperemia that irritates the vascular nerves of the conjunctiva; thereby the vessel walls are rendered more permeable and there is secreted an aqueous richer in albumen." This explains for him (the increase of serum) the favorable action of this injection upon certain diseased conditions.

Now, in my own experience I have developed an unavoidable fondness for subconjunctival injections, used especially in non-suppurative diseases of the uveal tract, such as (rather acute) plastic choroiditis. My first trial was some years ago, in a lad of eleven with progressive myopia (never corrected) and decidedly reduced vision, owing to patches of choroidal exudate. I don't deny that he had the classical pilocarpin sweat treatment, but I never, with such treatment alone, saw such rapid removal of exudate, such clearing of hazy vitreous nor such gratifying improvement of vision; so that the lad, at the end of two weeks in hospital was returned to his home wearing glasses and able to begin school work that he had never attempted before.

The improvement has been permanent, so the parents write. In another case, that of a man over fifty, who two years after an iritis developed a decidedly acute choroiditis, the same pleasing influence was observed. Rapid removal of vitreous cloudiness, rapid improvement of vision, and sharp limitations of choroidal pigment patches to the focus of earliest attack.

I am not giving a series of cases because the literature already has an abundance, nor does my enthusiasm carry me so far as to place much dependence upon the method in corneal inflammations, although many remarkable cases have been reported of decided check to infectious processes. These remain still subject to individual experiment and experience. I am sure, however, that subconjunctival injections exercise an undoubted, undeniable influence upon intraocular non-infectious inflammations; they encourage the absorption of opacities in the vitreous and of deposits within choroid and retina, and the method is of decided value to our curative agents.

The only question in my mind has been to decide upon the best way of applying the method. The earliest theory insisted upon using a solution of mercuric bichlorid for its excessive irritant quality and for its specific antiseptic and even anti-syphilitic power. This has been abandoned and for it was substituted the simple sodium chlorid solution, either 2 per cent (relatively painless) or higher strengths, progressively painful.

Pflügger advocated hetol for its supposed antitubercular influence. I have myself tried every combination suggested. Mercuric bichlorid I renounced at once as too painful and as of no specific value. Sodium chlorid solutions stronger than 2 per cent are also too painful, and I saw no advantage from them. Hetol I abandoned in any strength; the reaction was too great and the danger of subconjunctival adhesions (of which I have produced not a few) too imminent. I had restricted my method to the 2 per cent sodium chlorid, as painless, harmless and stimulant enough* until I tried the 1:3000 and 1:5000 cyanid of mercury solution to every fifteen drops, of which I, at Darier's suggestion (*Ocular Therapeutics*—Blakiston, p. 29) added two drops of a 1 per cent solution of acoin. This combination I have steadily used and see no reason to depart from the

*(Since writing the above I have read a report by Senn (Wyl), original in *Archiv fuer Augenheilkunde*, XLVIII, 3, concerning subconjunctival injections of oxycyanate of mercury 1:5000 (Darier) in central choroiditis of myopes with astigmatism. In forty-two cases thus treated he improved vision on the average of 50 per cent, and he is, therefore, an enthusiast for the influence of the method on choroidal lesions.)

habit. The criticism has been made that subconjunctival injections alone will not cure; that mercury and the pilocarpin sweat in choroidal inflammations, or the heat and atropin in corneal lesions are still indispensable. Even supposing this is so, we can not always predict success with any treatment, and the injection does not confuse the classical treatment, but whoever has had the pleasure of seeing a vitreous opacity begin to disappear after one or two injections when it seemed to remain stationary in spite of mercury or pilocarpin, or who ever has seen a corneal injection yield as if by magic (Wilder) after even one injection, when the eye had before been doomed to enucleation, is wrong in denying an active local influence not obtainable in any other way. Intraocular suppuration is a contraindication, according to most observers, and I have therefore no experience to offer, as I avoided treatment in that condition.

An incidental result for which these injections may be used is to encourage the absorption of subconjunctival blood clots, produced either by a blow or by rupture of a small vessel. I have repeatedly hastened the disappearance of such clots by injecting fifteen drops of a 2 per cent salt solution, with the advantage of having no pigment stain behind.

JEQUIRITOL.

Jequiritol represents the application of the modern laboratory idea to botanic, as well as to therapeutic science. Römer (1902), reasoning by analogy from the results obtained in producing the toxin and antitoxin serum in diphtheria (and other diseases), analyzed the jequirity bean by the same methods, and with Merck's assistance developed the jequiritol extract with its accompanying serum that seems, locally applied, to neutralize the irritant property of the extract. Jequiritol is not an alkaloid like strychnin, nor is it abrin in solution; it is more complex, and its effect on the body is tested, as are those of other organic poisons, while the serum is developed and tested in the same way.

Jequiritol is furnished by Merck's laboratory in four strengths with a definite quantity of serum in a box containing a pipette and printed directions for use. No. 1 strength is practically non-irritating, No. 4 is excessively irritating. It is intended to supplant jequirity (powder or solution) or abrin, and is to be used to clear corneal opacities, chiefly those due to trachoma. The drug is expensive.

I wish to report only six cases in which a thorough test was made, for without systematic and persistent use no report is of value.

CASE I.—Girl, fourteen; trachomatous family; has long standing trachoma of both eyes, the cornea being deeply affected. The cornea of the left eye had cleared under well tried treatment, but nothing served to influence the pannus nor the steaminess of the cornea in the right eye. Jequiritol No. 1, then No. 2, No. 3 and No. 4 were used according to directions, with no result or reaction whatever. There seemed an immunity.

CASE II.—A man of sixty, with trachomatous pannus of both corneae, the disease being of years' standing. The conjunctivae were completely usurped by scar tissue. Vision was so dulled in each eye as to prevent any actual recorded test. He received the treatment systematically up to No. 4, but with this I was obliged to resort to the serum, which quickly relieved the pain, but No. 4 could not be tolerated. Yet after prolonged trial of the drug in each eye, with which there was produced the expected reaction, no evident improvement could be detected either in vision or in corneal transparency. I subsequently performed a complete peritomy in one eye, with no functional success, and have been obliged to return to silver solution and the copper stick to get any benefit from treatment.

CASE III.—A woman of thirty-four, with soggy conjunctiva and pannus (trachoma) was treated in hospital for two weeks, according to directions. At first I insisted on the need of performing an external conthotomy, but improvement in sensation and vision was so rapid that she was finally dismissed, largely relieved of her symptoms, though the conjunctiva was still trachomatous. Here vision improved from fingers at two to three meters to about 6/24.

CASE IV.—A man of fifty, not quite as bad as Case II. I used no stronger than No. 3, as reaction was then evident and rather painful. Improvement was noticeable objectively, but the final outcome in vision and corneal clearness can not be given, as he sent me word that he was feeling well and would go to work again.

CASE V.—Young woman of twenty-one, trachomatous conjunctiva but no real pannus; slight marginal keratitis. V 6/24 in this (the left) eye, the right not being affected. Here No. 2 produced a reaction, No. 3 was painful. The corneal margin healed and V improved to 6/15.

CASE VI.—Man, twenty-seven. Long standing corneal opacity (not leucoma) cloudiness, from a keratitis in childhood. V. 6/60, no pain. Continued jequiritol gave no result.

The present cost of the drug is my best reason for not having a greater series of cases, but these six are typical of what may be ac-

complished, and probably with greater experience in selecting cases I can raise my proportion of improvement far above 50 per cent.

I dare not claim the Jequiritol is a complete substitute for better known methods, nor that it will revolutionize the treatment of trachoma or vascular keratitis, nor check the progress of the Roentgen ray, but it certainly has remarkable power, and the fact that Römer for its introduction was at the last Heidelberg Congress awarded the Graefe prize is proof of the esteem with which it is held in Germany. Should it prove a success it will show how much closer to a scientific method our therapeutic means are advancing, and how much greater precision our local agents possess.

A DEVIOMETER ATTACHMENT TO THE SKEEL PERIMETER.

DAVID W. WELLS, M. D.,
BOSTON, MASS.

The measurement of the angle of a squinting eye by means of the perimeter is, I believe, too well known to need explanation. My method has been to get the patient to fix the center spot, while a lighted candle is carried along the arc 'till the corneal reflection is in the center of the pupil of the strabismic eye. This is quite satisfactory with adults, but it is difficult to keep a child fixing an uninteresting spot, while such an attractive object as a lighted candle is moving about; and it is the *young* patient concerning whom something like exact measurement is needed, especially if one is attempting any corrective treatment. Dr. Black's modification of Mr. Worth's instrument suggested to me the idea of utilizing the Skeel perimeter as a deviometer. A hole is drilled into the white fixation spot, of just the same size as that in the movable arm which receives the different colored buttons. A miniature incandescent lamp (known to the trade as a "telephone receptacle") is shellaced to one of the buttons, which luckily is of the same diameter. This snaps into the hole at the fixation spot. Another lamp fastened to another button in the same way, snaps into the movable arm. The switch, which is out of sight under the table, is a "strap key 3 point connection." The wiring is so arranged that the central lamp burns as soon as the current is turned on. This the child fixes, the other lamp (not lighted) being moved to approximate the angle of the deviation. When the key is pressed the fixed lamp is extinguished,

and the movable one is lighted. The position of the reflexion is easily noted before the child has time to change his fixation. Releasing the key again lights the stationary one, and extinguishes the movable one. A few trials suffice to produce a reflexion in the center of the pupil. The low voltage current is obtained by a rheostat from a wall plate. Presumably a small dry cell battery would answer as well. The wiring is slack enough to allow slipping both lamps over the arm of the perimeter, and it requires only a minute to attach or detach them. When not in use, the cable of wires, with lamps dangling, is hung out of the way under the table. Meyrowitz will furnish the deviometer attachment to perimeter.

SUBCONJUNCTIVAL INJECTIONS OF SODIC CHLORIDE IN DETACHMENT OF THE RETINA.

TRANSLATED AND ABSTRACTED BY DR. CASEY WOOD, CHICAGO.

This remedy was not particularly successful in seven cases in which it was employed by Armando Tarducci* (Florence). It was Lodato who first recommended the procedure, in 1895—a translation of his article having appeared shortly afterward in the *Annals of Ophthalmology*. The following year he published a further series of cases, announcing as his conclusions that subconjunctival injections of sodium chloride cause more or less improvement (and even entire replacement) in recent detachment of the retina, with a corresponding increase in central vision, and enlargement of the field. He claimed that this improvement is rapid, appearing after the first or, at least, after the second and third injections. If the first two or three injections are ineffectual it is useless to continue them, as later injections have no effect upon the detachment. The injections, said he, are equally effective in all forms of detachment, from myopia as well as from trauma, but they are less active in cases with much cloudiness of the vitreous. They are very slightly painful and cause no inconveniences of any kind.

Mellinger, of Basle, reached the same conclusions about the same time; that injections of sodic chloride are effectual in recent and partial detachment of the retina, while they are useless in old and total cases. In 1896, Dor reported to the *Société Française d'Ophthalmologie* the results in fifteen cases treated by application of

* Le iniezioni sottocongiuntivali di cloruro di sodio nel distacco di retina *Annali di Ottalmologia*, Fasc. 9, 10, 1903, p. 650

Henricioup's leeches, cauterization of the sclerotic, continued rest in bed, and injections of 20 to 30 per cent sodic chloride made under the conjunctiva or into the capsule of Tenon. In nine of these cases the retina had become completely reattached and remained in place for at least two years; in one case there was a relapse after seven months. The other five cases were failures. The results on the whole were good. De Wecker at this meeting of the Society denied any efficacy to injections of 2 and 3 per cent sodic chloride.

Schiess-Gemuseus published in 1896 two cases successfully treated by subconjunctival injections of sodic chloride combined with diaphoresis, mercurial frictions and rest in bed. Marzoli, in 1889, reported improvement of vision and in the visual field in six cases.

Encouraged by these favorable reports, Tarducci gave the injections a trial in his clinic. He used sodium chloride solutions in strengths of 2, 3, 4, 5, 10 and 20 per cent. He injected the fluid under the bulbar conjunctiva and always at points corresponding to the detachment, although no importance has been ascribed to the site of the injections by others. Five minutes before the first injection he instilled 3 per cent cocain, or sometimes anesthesia was obtained with acain, but without any advantage over the cocain. The results were completely negative in two of the seven cases, and in the others the improvement gained was but trifling.

In one of the unsuccessful cases the detachment was of only fifteen days' standing. After four injections both central and peripheral vision were decidedly worse than before. The other unsuccessful case was of long duration, and vision diminished after four injections.

In the others, one was a detachment five months old. In this case four injections were made; central vision showed no benefit although there was a slight enlargement of the field. In the second case the detachment was only eight days old. The patient left with V. the same, but the limits of the field were almost normal. In the third case, the detachment being sixteen days old, there was slight improvement in central vision, but there was no change in the field. The fourth was a case of detachment about fifteen days old, and there was slight improvement both in central and peripheral sight. The remaining case was one of detachment that had existed at least twenty days. The patient in coming up to the city had to ride for twenty-five miles in a wagon, jolting over rough roads. This had aggravated his condition and he entered the clinic with his visual field much reduced and no central vision. Rest alone was sufficient

to bring about an improvement, which continued for five days, after which it remained stationary. After three more days there was no further improvement in field, so a 3 per cent solution of sodic chloride was injected, followed by three other injections at intervals of four to five days. After each treatment there was always a slight enlargement of the visual field and sometimes a greater central acuity, but these lasted only two or three days, after which the eye resumed its former condition. In this case the detachment was recent and conditions seemed favorable for recovery, and yet the final improvement was insignificant. Hypodermic injections of pilocarpin had been made in five cases, supplemented by instillation of eserine in one, including the two negative cases. There is no scientific basis for the assumption that these adjuvants are contraindicated, and the impression was derived that they had contributed to the improvement, when there was any. He summarizes his conclusions to the effect that injections of 3 to 20 per cent sodic chloride do absolutely no good in detachment of the retina of long standing. In recent detachment injections of 2 to 10 per cent cause a slight increase in both central and peripheral acuity of vision, but after three or four days the improvement is lost. In general, the eye responds to the first two or three injections, but is not affected by subsequent ones. On the whole, these injections give no better results than those obtained by the more usual modes of treatment.

REPORTS OF SOCIETIES.

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting, November 18, 1903. Dr. Samuel D. Risley, chairman, presiding.

Dr. William Zentmayer exhibited a case of *Persistent Hyaloid Artery* as a blood-bearing vessel. When first seen the child was twenty-one months old, and the vessel with its inclosing sheath could be traced from the disc to the posterior capsule of the lens. Five years later the lens had become opaque, and four years subsequently the cataract was absorbed and the hyaloid remnants were again visible.

Dr. G. E. de Schweinitz exhibited a patient with the *Ciliary Processes Visible in the Pupillary Area*. Bilateral iridectomy had been performed for the relief of chronic iritis followed by needling of the left lens, and the ciliary processes through the entire upper portion of the coloboma were distinctly visible, and, extending from the partially absorbed lens to the points of the processes, the delicate fibers of the zonula could be traced. He referred to the literature of this subject, and especially to the recent paper of Koerber and Weiss.

Dr. Charles A. Oliver read a clinical history of a *Case of Right Pulsating Exophthalmos*, which, after ligation of both the right common carotid artery and the left internal carotid artery, was almost immediately cured. The boy, aged fifteen years, had been shot back of the right ear five months previously. There was a double thrill, one deeply seated in the orbit and a stronger one situated just below the right mastoid region. The eyeball was proptosed some 5 mm. in advance of its fellow, with an external deviation of $22\frac{1}{2}^{\circ}$.

Ligation of the right common carotid artery was followed by a partial relief of the orbital bruit and a slight lessening of the proptosis. The external deviation gradually decreased to but three degrees in two months' time. Intraocular tension remained normal. With the exception of a slight fullness of the retinal veins of the affected side there were not any visible intraocular changes.

Four months later the double bruit had become more pronounced, and both the retinal veins and the corresponding arteries were more tortuous. These symptoms increased during a period of three months, when the left internal carotid artery was ligated, and the patient was placed upon the Tufnell treatment. Ten days after the

operation an attack of obscuration of vision of the right eye lasting some seventeen hours ensued, during which time both bruits were absent. Examination immediately afterward failed to show any gross lesions except those above noted. Not the slightest objective evidence of either glaucoma or intraocular hemorrhages could be found.

The symptoms, though somewhat lessened, did not subside until almost three years after the original accident (twenty-one months after the second operation), when the patient collided with one of his playmates, producing an almost immediate disappearance of nearly all of the conditions. This good result has remained intact for more than a year. At present, there is but 1.5 or 2 mm. of right proptosis situated directly ahead, and the retinal veins are but slightly enlarged. Both eyes are properly functioning in every respect. There is no orbital bruit; no ocular pulsation; and no perceptible thrill.

DISCUSSION.

Dr. Risley referred to a case of exophthalmos appearing suddenly after a debauch, and associated with diplopia, deviation of the eyeball inward, and edema of the conjunctiva. A diagnosis of aneurysm of the cavernous sinus was made. For several weeks the man was kept in bed, and compression made upon the common carotid, which entirely stopped the bruit while the pressure was maintained. The common carotid was subsequently tied, and complete recovery ensued with normal vision and disappearance of the exophthalmos. Extensive hemorrhages occurred in the eye-ground following ligation of the artery—a fact he found difficult to explain. In his judgment treatment by compression prior to ligation of the vessel is important, since it contributes in an important degree to the establishment of a collateral circulation, and in this way favors a cure. Dr. Harlan cited an instance in which compression alone effected a complete relief of a marked case of exophthalmos, the equator of the globe extending beyond the orbital margin. The compression was continued at intervals for months, and later the patient, who became expert in making the pressure on the vessel, only employed the compression when in pain. In about a year the exophthalmos disappeared. While this might have been a case of spontaneous cure, he believed that the patient's persistence in applying the compression relieved the condition. Dr. Risley stated that he had reported a case a few years ago in which compression effected a cure.

PROTARGOL-ARGYROSIS OF THE CONJUNCTIVA.

Dr. G. E. de Schweinitz, after referring to a paper recently published on the treatment of trachoma, in which it was stated that 2 per cent solutions of protargol could be safely entrusted to patients because they do not produce the disagreeable stainings attendant upon the use of some of the salts of silver, questioned the wisdom of this publication, because protargol is capable of rapidly, it would seem in some instances more rapidly than nitrate of silver, producing argyrosis. He quoted the literature of this subject, referred particularly to the papers of Pergens, Dodd and others, and then described five cases which had come under his own observation, in all of which the solution of protargol used had been a 5 per cent strength. One of these cases he had already reported in detail with microscopic examinations before the American Ophthalmological Society. The shortest time in which the staining had taken place was difficult to determine, although Pergens maintained that he had seen it at the expiration of five or six weeks after the use of a 2 per cent solution. Dr. de Schweinitz thought, however, that in most instances from three to six months had been required to bring it about. He agreed that protargol was an admirable remedy, properly used, in many conjunctival diseases, but maintained that it was not safe to give it to patients for home use, even in the weak solution already referred to.

DISCUSSION.

Dr. Risley stated that he had seen in consultation a few months ago an extensive and deep staining of the conjunctiva in the region of the internal canthus from a single injection of a 10 per cent solution of protargol into the lachrymal sac for the relief of dacryocystitis. The staining gradually disappeared. He agreed with Dr. de Schweinitz that these salts of silver should not be given to patients for home use.

Dr. G. E. de Schweinitz read a paper on *Certain Untoward Results of Tenotomies for Anomalies of Ocular Motility*, and discussed the subject under the following heads: overcorrections resulting in manifest deviations; insuperable diplopia; limitations in the ocular rotations; the development of phorias not originally existing; and painful cicatrices. Cases were given in illustration and the remedies—operative and otherwise—employed to bring about relief were described. Dr. de Schweinitz dwelt at some length on cases of insuperable diplopia created by what he termed pernicious activity in interfering with the attachments of ocular muscles, especially in

repeated tenotomies, and the grave disturbances of the nervous systems of the patients which had arisen in consequence of them.

Drs. Wm. Campbell Posey and H. Maxwell Langdon (by invitation) reported *Some Observations upon the Non-operative Treatment of Squint*, and detailed the history of nine cases of convergent squint treated by the Worth amblyoscope. Case I, aged six years, static convergence 40° , $V = -O D$, 6/5; O S, 1/45. After four weeks, $V = O S$, 6/30, and convergence 30° . Case II, aged six years, $V = O D$ 6/30, O S 6/20, improved to 6/20 and 6/15, no fusion power developed, nystagmus on fixation. Case III, aged four and a half years, alternating squint for one year. Trained four times with amblyoscope, and slight gain in fusion power. Seen eight months later with no squint. Case IV, aged six years, trained twice weekly for four months. Vision improved in O S from 6/30 to 6/15, and static convergence lessened from 30° to 5° . No gain in fusion power. Case V, aged seven years, static squint 35° , corrected $V = O D$ 6/6, O S 6/9. At the end of four months squint lessened to 10° . Fusion with amplitude of from 3° to 5° obtained. Tenotomy will be required to place visual axes parallel, and it is hoped that the slight fusion sense developed will keep them so. Case VI, aged six years, static convergence 50° , $V = O D$ 6/6, O S 6/30. At first O S fixed and O D deviated, but after use of atropin in O S only, O D became fixing eye and O S deviated and became amblyopic. No improvement in either squint or vision in amblyopic eye, though O D was ordered covered two hours daily. Case VII, aged eight years, static squint 10° , $V = O D$ 6/12, O S 6/6. In four weeks fusion amplitude of 10° , and squint disappeared both with and without correction. Case VIII, aged nine years, similar to preceding. Case IX, aged five years, high H + A H; alternating squint, and vision same in each eye. Already has some fusion power, although only four trainings with amblyoscope.

Two cases were found to squint without their correction on strong accommodative effort, though each had perfect fusion power with good amplitude. A high refractive error existed and the accommodative effort apparently caused an over-convergence. Mr. Worth claims that squint with perfect fusion power is impossible. The dynamic convergence of one of these was 20° , and of the other 45° .

Without combating Mr. Worth's theory of a defective fusion faculty as the etiological factor in convergent squint, it did not appear to the writers that the proof offered by Mr. Worth of certain

experiments which he had made with the amblyoscope by any means proved his theory or confounded the theory of Donders, of disturbed relationship between accommodation and convergence. They called attention to the fact that the amblyoscope, in order to be of service in establishing binocular vision and removing the squint, must be employed before five years of age, and they offered an earnest plea that glasses be prescribed for squinting children as early as three years of age. They advocated the instilling atropin into the non-squinting eye, or bandaging this eye for certain periods during the day, even at an earlier age. The writers found vertical deviation in the images in a very large proportion of their cases. They believed the amblyoscope to be an instrument of great value in training binocular vision, and contrary to the impression one might at first obtain of it, easy to use and not to demand a great deal of time in its employment.

IS DOUBLE OPERATION FOR SENILE CATARACTS JUSTIFIABLE?

Dr. H. F. Hansell answers this question in the affirmative under the following conditions: That the vision of each eye is so diminished that the patient is debarred from his usual occupation and is unable to earn a living; that both cataracts are ripe enough to warrant extraction or in other words that either lens might be operated on with equally good chances of a favorable result; that nothing in the patient's mental or physical state might militate against recovery; that the cataracts are not secondary to local or general disease; that the extraction of the first lens was accomplished without accident or indications of complications should operation on the second eye be attempted. The contraindications are the danger of infection during or after operation, the presence of lachrymal disease, constitutional weakness from nephritis, diabetes, syphilis or other dyscrasia, hemophilia or other idiosyncrasy and the patient's unwillingness. The advantages of the double operation are that the patient is subjected to one operation instead of two, recovery occupied ten days instead of twenty, the restoration of binocular vision and the simplification of the subsequent correction of refraction. In Dr. Hansell's five cases recovery ensued without complication and the history of the healing contained no intimation that the conditions would have been improved had the procedure been limited to the extraction of the lens from one eye only.

DISCUSSION.

Dr. Harlan thought that in the few cases in which a general anesthetic was necessary, both lenses might be extracted at one time,

although he preferred to operate upon one eye, as information is often obtained that proves of value in extracting the lens of the second eye.

Dr. Risley referred to a man, aged eighty-two years, who developed rheumatism, after a perfectly smooth extraction, which attacked the operated eye. Under treatment of the rheumatism, the eye became quiet. If both eyes had been operated upon, a double rheumatic iritis might have resulted with serious results to vision. In cases of old people under general anesthesia he believed that double extraction was justified in the absence of any marked general dyscrasia, i. e., rheumatism.

WILLIAM M. SWEET, M. D., *Clerk of Section.*

WILLS' HOSPITAL OPHTHALMIC SOCIETY.

NOVEMBER, 1903, MEETING.

Dr. S. Lewis Ziegler showed a most interesting case of *double coloboma of the iris and capsular indentations with lenticular streaks and choroidal involvement* in their usual situations, in association with microöphthalmos which was more greatly marked on the left side, occurring in a five year old girl of good parentage. In addition, there was a pronounced degree of convergence of the two eyes, but without any apparent pareses or palsies.

Dr. Charles A. Oliver exhibited a cured case in a normally functioning eyeball of *infectious kerato-iritis with deposits on the anterior capsule of the lens*. The patient, a foundry worker of thirty-one years of age, had struck his left eye with a splinter of soft wood, producing an open wound of the cornea through which two pieces of wood has passed into the anterior chamber and rested against the iris, the iris tissue being grossly inflamed and infiltrated. After removal of the splinters of wood and all of the foreign material possible, with careful treatment of the involved parts, the signs of reaction rapidly disappeared, leaving a permanently healthy organ. Bacteriologic examination of the pieces of wood showed a preponderance of pyogenic bacteria.

An example of the comparatively rare condition of suppurative dacryodentitis in which the diagnosis had been fully established during the very earliest stages of the disease, was shown by Dr. Ziegler. He also exhibited an instructive illustration of optic nerve atrophy following ocular contusion, the only visible early signs being the

presence of a few massings of subretinal hemorrhage situated in the posterior pole.

Dr. Oliver showed the final results of a case of *chronic double symblepharon and ankyloblepharon from a hot iron burn*, in which he had successfully separated both the lower and the upper lids from the eyeball, giving all their ordinary and proper degrees of motility. The bands, which embraced more than the inner third of both lids and which were fastened directly to the corneal limbus, and which bound the inner fourth of the lid borders together, had been dissected into loose tongue-like flaps, and the adjacent conjunctiva brought together throughout their entire original lengths beneath by a series of fine interrupted silk sutures; the loosened tongues of scar tissue being fixed to the adjoining good mucous surfaces. The operation was divided into two sittings.

Dr. M. Uribe Troncoso, of the City of Mexico, being invited to give his views upon the origin of glaucoma, stated quite extensively in detail the findings in his experimental studies upon lower animals, the results of his clinical researches, and his conclusions in regard to the various etiologic factors at play; as well as the prognoses, and the various plans of therapy, in such cases. The want of fibrin, the great amount of albumin, the edema of the vitreal elements with forward pushing of the vitreous body, the secondary closure of the angle of the anterior chamber, etc., all were carefully considered.

In the discussion, Drs. Oliver, Ziegler and Radcliffe took up the questions of the varieties and stages of the disease complex, the main etiologic factors at work, the gross and the fine pathologic changes, and the relative effects of medicinal and operative therapy.

Dr. Bedell showed a case of dendritic ulcer of the cornea following capsulotomy which had been cured by large doses of quinine used both locally and internally. Upon inquiry, he stated that no bacteriologic studies had been established.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, November 19, 1903.

John Tweedy, P. R. C. S., president, in the chair.

Case of Indirect Gunshot Injury of Eyes; Microscopical Examination.—This case was read by Mr. Nettleship. The patient was a man aged nineteen who in July, 1897, held a pistol to each temple and fired. He was brought to the hospital bleeding from a wound

in the right temple. The skin was singed and the bullet wound passed through the orbit into the ethmoid. In the left temple was a bullet wound into which a probe could be passed two or three inches. There was P. L. in the right eye, but not in the left. Nine days later the right fundus showed hemorrhages in various parts of the fundus. In the left no details were visible. Twenty-nine days later the right disk was very pale and there were several ruptures of the choroid. The left was not so well seen. Thirty-one days after the accident he was X-rayed, this being in its very early days. It was thought that two bullets were seen in the skull, but this was found afterward to be an error. On the thirty-sixth day after the injury convulsions developed and patient died comatose. Post-mortem examination showed that there was no bullet in the skull. There was meningitis of the base and vertex. Only the pistol fired on the left side took effect, the right having probably had a blank charge in it. The back part of the eyes were removed for examination and Mr. Nettleship gave a lantern demonstration and showed photographs on the condition found on microscopical examination. The point of interest was that although the bullet had caused so much injury to the choroid, yet this was only indirect as it had not passed near enough to the eye to touch it, and there was no rupture or perforating injury of the sclerotic.

The president mentioned a somewhat similar case that had come under his own observation.

An Easy Operation for Ectropion.—Dr. Freeland Fergus described the operation he had found very useful for ectropion following certain cases of blepharitis. He considered the usual methods with caustics unsatisfactory. The operation he described consisted of dissecting the conjunctiva well away from the underlying tissue and removing the hypertrophied tissue thoroughly; on this latter point depended the success of the operation. He considered that Snellen's sutures produced but little effect if they were kept asptic.

Average Visual Acuteness.—Dr. Freeland Fergus also read a paper on this subject. He seriously called in question whether the 6/6 of Snellen's types was the average vision of the majority of people. He thought that the average was nothing like so high if patients were taken without the correction of their refractive error and that for medico-legal questions the average without correction should be taken. He suggested that a committee should be formed to investigate this. They might at the same time investigate the question of color vision as he considered that color blindness was not

in any way dangerous to navigators or seamen if their light sense were normal.

Mr. Devereux Marshall said that he was surprised that color blindness should be considered of so little importance to those engaged in navigation, and if there were any who doubted the extreme inadvisability of allowing color blind men to take responsible positions on board ship a committee should certainly be formed to settle the matter.

The president said that although he quite agreed as to the importance of the light sense being perfect, yet he by no means thought that color blind people should be allowed to take charge of ships.

Messrs. Seker Walker and Roll discussed the operation for ptosis and Dr. Freeland Fergus in reply said that he considered color blindness of no disadvantage to seamen, for if their light sense was perfect, they would never confuse the side lights. He thought it entailed much hardship on men who were perhaps rejected from the Extra-Master Certificate for color blindness, when they had perhaps served many years at sea without any accident having occurred in consequence of their defect.

The Judgment of the Size of Distant Objects.—Mr. N. Bishop Harman in his paper on this subject referred to a note in the *Brit. Med. Journal* of Sept. 12, 1903, wherein a writer drew attention to an experiment in which, by an illusion, the experimenter was led to believe objects seen were smaller and more distant than they were known to be, this had been attributed to the influence of accommodation. Mr. Harman pointed out that these facts were true and well known. He showed by several simple experiments with prisms and stereoscopic views that objects could be made to appear either small or large at will, and that this illusion was due to the state of balance of the extraocular muscles. The unconscious cerebation leads one to suppose that objects of a given size appeared, when seen under unnatural conditions of convergence, smaller and more distant; but that when seen under unnatural divergence they seemed larger and nearer than they were known to be. Mr. Harman showed that in the progression of the vertebrates, increase of visual acuity was coincident with the moving of the eyes from a primitive lateral position of the head to a forward position, in which the visual axes could approximate a normal parallelism; the change was complete in man and with him spacial perception was probably most perfect. Coincident with these changes was a specialization of the superior

oblique muscle. Mr. Harman pointed out that in the plaice almost the whole of this slow progression had been anticipated at a bound. These elected to live a life resting on one side, and they appear to depend above all other fish on the acuity of their eyes, both of which were turned upward on the exposed uppermost side, and were, he thought, capable of some degree of parallelism of visual axes. In these fish he had found the same special features of the superior oblique muscles which characterized the higher vertebrates, it was not found in any other fish. He believed that the steady progression of the vertebrates toward binocular vision indicated the preëminent importance of extraocular muscle balance in the factors which go to form our judgment of size and space.

The following card specimens were shown:

Mr. G. W. Roll: *A case presenting a raised area of choroidal degeneration.*

Mr. Doyne: *A case of ill-developed cornea.*

Mr. Pooley: *Thrombosis of a retinal vein.*

Mr. G. E. Henderson: *Sections showing subconjunctival dislocation of the lens.*

Mr. Jessop: *A case of sarcoma of the limbus.*

Mr. Doyne: *Sclerosis of the retinal artery.*

COLORADO OPHTHALMOLOGICAL SOCIETY MEETING IN DENVER, OCTOBER 19, 1903.

Discussion on the "*Therapeutics of External Diseases of the Eye and Its Appendages*" was opened by Dr. Walter Hilliard, who reported seeing Mrs. — in July, 1899. She consulted him for a refractive error, which he duly corrected. The patient suffered also from a *chronic dacryo-cystitis of O. D.* of four or five years' duration, which she declined to have treated, as other ophthalmologists had failed to give her relief. He saw the case again in April, 1903, when he found the lachrymal apparatus in both eyes normal. No vestige of disease remained. Patient stated that she had an attack of erysipelas beginning in the left temple, rapidly involving the entire face and scalp. The attack was severe, delirium was present for several days and both eyes were closed by the swelling. This attack lasted two weeks; with its disappearance the lachrymal disease vanished.

Dr. D. Coover mentioned several cases of dacryo-cystitis caused by facial erysipelas.

Dr. M. Black once saw an old case of dacryo-cystitis with phlegmonous involvement of the sac; this inflammation apparently cured the dacryo-cystitis. Subsequently, though he passed no probe efforts to syringe the duct through the canaliculus were unavailing. He believes these cases are cured by an obliteration of the lachrymal sac by adhesive inflammation. Dr. G. F. Libby reported a somewhat similar case.

Dr. Hilliard reports good results from 10 per cent to 30 per cent sol. argyrol in both catarrhal and purulent inflammations of the conjunctivæ and in cases of dacryo-cystitis. Dr. Black is in doubt as to the utility of argyrol. He finds sol. ichthyargon in 4 per cent to 10 per cent improves pannus and cicatricial trachoma. He advises the use of iodine-vasogen as a stimulant in scleritis and kerato-scleritis.

Dr. A. C. Friedmann spoke of a recent case in German literature of atropin poisoning following the combined use of atropin and adrenalin in solution and believes such toxic effect is impossible if the drugs were used in succession in separate solutions. For pannus he advises 1:3000 sol. adrenalin chloride in a 1 per cent sol. acid boracic with 10 per cent vaselin.

Dr. E. Jackson believes there will soon be a good crop of stained conjunctivæ from the new silver preparation. He detailed cases of dendritic keratitis treated as follows:

CASE 1.—Dendritic corneal ulceration, characterized by great pain. Preceded by sol. holocain, 1 per cent, the ulcers were touched with a pointed stick first soaked in a 30 per cent to 50 per cent sol. acid nitric. The wood is allowed to dry a few seconds so that no excess of acid can adhere to it; it thus acts as a sponge, to give up the solution on contact. The nitric acid eschar thus formed is hard and protective. The case rapidly improved, pain quickly subsided. He does not wash out the conjunctivæ after the application.

CASE 2 presented a large patch 3 mm. long, extending horizontally across the cornea with several punctate areas beyond, the ulceration was shallow but very painful. Rapid healing following nitric acid cauterization.

Dr. G. F. Libby reported a case of chronic dacryo-cystitis rapidly cured by a 10 per cent sol. protargol, also two cases improved by treatment of the nasal extremity of the duct.

Dr. J. A. Patterson always examined the condition of the nose in dacryo-cystitis and treated any existing pathological conditions, believing it to be an essential factor in the cure. He has been disappointed in the action of argyrol, finding it no more efficacious than

protargol, and, though painless when applied, is such a bad staining agent, particularly to clothing and handkerchiefs, as to be disagreeable. He spoke of the efficacy of weak solutions of mercuriol in phlyctenular conjunctivitis. He has had good results from applications of copper citrate in substance to the cicatricial lids of old trachoma sufferers.

The following clinical cases were presented by Dr. Melville Black:

CASE 1.—John ———, presented at the last meeting, showing interstitial keratitis in O. D. and hyalitis in O. S., with an attack of glaucoma following the accidental entrance of atropin into O. S. that had been ordered for O. D. only. At that time a broad iridectomy had been done in O. S. which had stayed the glaucomatous process. Since then he had been in the hospital two weeks, where pilocarpin sweats had been induced on alternate days by hypodermic injections. The vitreous opacities had been greatly improved. Three days after leaving the hospital the glaucoma returned, which had been controlled by eserin. Dr. Black desired opinions as to the advisability of doing a sympathectomy.

On discussion the members advised continuing eserin, advocating sympathectomy if required.

CASE 2.—Male, injured ten days ago by a small fragment of steel flying from a tool on which he was pounding. The tool being new, the nick point showed the fragment to be half the size of a wheat grain. Vision immediately became obscured. Dr. Black saw him the day following the injury. There was a penetrating wound of the cornea, iris and lens, the iris being caught in the corneal wound. Some blood was present in the anterior chamber. No view of fundus obtainable. Giant magnet for diagnosis negative. He was anesthetized, a linear extraction with iridectomy performed with the tip of a Hirschberg magnet introduced into the suspected portion of the vitreous. No foreign body was found. Pain continued. A skiagraph by Sweet's method is negative. Second trial of giant magnet negative. Dr. Black believes a foreign body is present, but has not sufficient convincing proof.

On discussion Dr. Neepor believed one was justified in waiting. Dr. Hilliard and Dr. Coover advised enucleation. Dr. Jackson advised waiting and enucleating promptly if inflammatory symptoms do not promptly lessen. He believes a foreign body is present.

CASE 3.—Girl, aet. nineteen; has been under the care of her family physician for two months for interstitial keratitis; treatment

consisted of iodide and mercury internally and atropin locally. A week before coming to Dr. Black the cornea began to bulge, without pain, but with marked photophobia. When he first saw her, in addition to the corneal bulging, the corneal tissue was filled with opaque spots that were located in the middle and posterior layers. Numerous blood vessels ran into them from the periphery; anterior chamber shallow, T + 1. Eserin was used occasionally to control tension and ung. iodoformi, 10 per cent locally, daily. After a few days an iridectomy was made, since which time the corneal staphyloma has decreased 50 per cent. No history nor evidence of syphilis is obtainable, general health being good. Dr. B. is unable to assign a cause.

CASE 4. Male, act. forty-five. First seen nine months ago because of failing vision in O. D. Eye grounds normal except evidence of slight opacity of retina at macula. H2 for each eye. He should conclude that the eye was simply amblyopic if patient was not conscious of blurred vision on this side. Vision in both eyes equals 5/5.

CASE 5. Male, act. twenty-three. O. D. V. and O. S. V. = 5/40. Fields normal. Both nerves abnormally pale and each macula occupied by an elevated pin head size patch slightly paler than the surrounding fundus. Though he had consulted many oculists and neurologists he was unimproved. Dr. Black found no assignable cause.

Dr. W. C. Bane presented the following cases:

CASE 1. Results of *plastic operation* on left eye done *one year* ago.

L., male, act. thirty-five. Dr. Bane operated in November, 1902, for extensive *symblepharon* of the left upper lid. "The adhesion extended from the center of the cornea including all of the upper half of the surface of the ball into the cul de sac, and temporarily 6 mm. beyond the limbus. Under local anesthesia the adhesion was dissected away. A part of the denuded surface was covered with a graft from the patient's lower lip and the remaining surface covered by transplanting ocular conjunctiva. A thin sheet of lead was then inserted like an artificial eye, which was worn four or five days. The result has continued perfect, allowing free movements of the lids and eyeball. The condition was believed to have been caused by grattage of the lids for trachoma.

CASE 2. Male, act. thirty-two. Italian coal miner. Came to the D. and G. College Dispensary October 17, six days before the right eye became inflamed and on the above date presented a yellowish corneal ulcer 2 mm. in diameter in center of right corneal

quadrant with chemosis conjunctivae, marked photophobia and pain. The ulcer was cleaned out with pure carbolic acid, atropin instilled and compress bandage applied. The following day the actual cautery was used upon the ulcer, atropin and sterile vaseline applied. Gradually the ulcer by extending involved the entire cornea. Hypopyon appeared on the fifth day of treatment, increasing until the anterior chamber was half full. Acting upon the findings of Ulthoff and Axenfeld, that the pneumococcus is the cause of serpent ulcers, he injected into the tissues below the scapula 20 cc. of Mulford's anti-pneumococcic serum. The following day the hypopyon was larger, but from that time on there was no further increase and pain became less for three or four days. The pain, however, returned on November 6, when the anterior chamber was tapped and the bulk of the pus liberated. The wound was kept open several days. Improvement began after the paracentesis and the ulcer healed. An examination of the *secretion from the ulcer* just before the serum was used was learned subsequently to contain *no pneumococci* but an abundance of *streptococci*. Previous to administering the serum sodium salicylate in twenty grain doses was given every three hours and continued for a week afterward.

Discussion.—Dr. E. W. Stevens considers that the pneumococcus corneal ulcer is more superficial in its involvement than the streptococcus invasion. The anti-streptococcus serum does neither good nor harm. Dr. E. Jackson replying to a question by Dr. Neepser, believes in releasing 2 mm. or more pus in the anterior chamber if on waiting two days no improvement is noticeable.

CASE 3. Male, aet. twenty-four. Irish parentage. When intoxicated was struck in the left eye, seventeen days ago. Thinks he was not struck with any one's fist, but does not know how he was injured. The eye has been blind ever since the accident. When Dr. Bane saw him the third day after the injury, the eye having been previously dressed by a general practitioner, there was present ecchymosis of the lid and conjunctivae, and the cornea was of a gray opaque appearance, showing a horizontal, sharp-edged cut extending entirely across it, through which a shred of iris protruded. The protruding iris was excised, atropin instilled and the eye sealed with 1:1000 trikresol vaseline and a compress bandage. The wound leaked until about the fifteenth day, when the edges of the cut were found drawn inward, the lower slightly overriding the upper. Slight flattening over the ciliary body was manifest. Pain has developed during the past twenty-four hours.

Discussion.—Dr. Friedman believes the case to be one of rupture of the cornea.

Dr. Jackson said such ruptures usually occupied the periphery of the cornea.

CASE 4. P. K., aet. five. On September 29, 1903, while endeavoring to withdraw a nail with a pair of broken-pointed scissors he struck the left eye, causing an oblique cut across the cornea from within 2 mm. of the temporal margin to near the nasal margin. The wound healed promptly with little pain. When Dr. Bane saw the case, five days afterward, the wound was partly closed and a band of iris was incarcerated in the outer angle of it; slight circumcorneal injection was present but no evidences of infection. Vn.= 6/6 in each eye. Atropin and compress bandage applied. There now exists a linear opacity where cornea was cut and an anterior synechia. Within the past two weeks there has been a disposition for this eye to diverge.

Discussion.—Dr. Black had a somewhat similar case in which five or six years after the accident he successfully released the synechia with a Knapp's knife needle, although vision continued low on account of irregular astigmatism. Dr. Coover related a case of anterior synechia from a perforating corneal ulcer which he released by introducing a blunt hook into the anterior chamber, catching the synechial band and detaching by traction.

Dr. Jackson "thinks this is a case for such an operation as Dr. Black mentioned, believing the astigmatism would be improved by it."

Dr. E. R. Neeper, Colorado Springs, exhibited two new eye glass guards he had constructed, one similar to the Wells guard, having an adjustment to alter and fix the ventero-posterior angle of inclination of the guard, and one with a peculiar spring for use on mountings, similar to the Fitch patents; the latter design he showed gave greater ease to the wearer and more security of hold than the ones commonly in use.

J. A. PATTERSON,

Secretary.

ABSTRACTS FROM RECENT OPHTHALMIC LITERATURE.

BY EDWARD A. SHUMWAY, M. D.,
PHILADELPHIA.

Astigmatism of the Cornea and Central Choroiditis in Myopia.—

A. Senn (*Arch. f. Augenheilk.*, Aug. and Sept., 1903), from a study of cases of myopia, comes to the conclusion that the central choroiditis, which occurs in myopia, is not dependent upon the degree of myopia, but upon the corneal astigmatism. In 205 eyes with central choroiditis he found that pathological astigmatism (*i. e.*, over 1.25 D, according to the rule) was present in 78.1 per cent, while in 196 eyes with high myopia (over 7 D) without central choroiditis, astigmatism was present in only 27.6 per cent. Moderately myopic eyes with 2.5 D of astigmatism are more apt to be complicated with central choroiditis than those of 18 D of simple myopia; and if a moderately myopic eye (less than 8 D) has central choroiditis, there is usually a high degree of astigmatism with the rule, or some astigmatism against the rule. Hence the astigmatism should be very carefully corrected. Senn was able to observe a decided improvement in visual acuity in a number of such cases by correction of the astigmatism.

vernal catarrh of the conjunctiva, in combination with cocaine and atabalin.

Concerning the Superficial Punctate Exanthematous Keratitis Occurring in Measles.—Trantas of Constantinople (*Annales d'Oculistique*, Aug., 1903) describes a superficial keratitis in measles, in the form of small, grayish points, situated in the superficial layers of the cornea, which he has seen in 31 out of 41 cases examined (76 per cent). When the points were numerous, the keratitis was accompanied by irritative phenomena. The condition was almost always bilateral, commencing usually from the third to the fifth day after the appearance of the eruption. It was occasionally observed on the second day, and sometimes not until the eruption had disappeared, but was never found to precede the latter. It disappears in the course of three or four days, without especial treatment. Age and sex have no influence. Trantas believes that it is of the same nature as the exanthem itself, as it occurs in the superficial layers of the cornea, which constitute, embryologically, the cutaneous part of the cornea, and thus differs from the phlyctenular condition often found in measles, which is usually attributed to the lymphatic diathesis influenced by the measles. It accounts for the great irritation 'synechia' from which is so often seen after the appearance of the introducing a blunt hook into the anterior chamber, catching the synechial band and detaching by traction.

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general reaction, but was rapidly absorbed. Six months later the eye was clear, and showed only traces of previous retinal hemorrhages. Two more injections of 100 c.c. were then made, and the patient allowed to depart. No further hemorrhages occurred. In the second case six abdominal injections of 150 c. c. each were made, and both eyes became clear. The vision had remained good for three and one-half years. He believes that the treatment should be tried in suitable cases. Its action is two-fold—in the first place producing hemostasis, and, in the second, modifying the constitution of the blood so that it is more coagulable and less diffuent. He thinks there is no danger of producing tetanus, if the serum is properly sterilized, but if the operator is not sure of the sterilization, it would be better to substitute chloride of calcium, which has the same properties, though it is less active. This may be given in doses of 5 to 6 grams per day, by mouth, or of 10 grams by injection.

NOTES AND NEWS.

ITEMS FOR THIS DEPARTMENT SHOULD BE SENT TO
DR. BROWN PUSEY, 31 WASHINGTON ST., CHICAGO.

A new ophthalmic journal will appear shortly, edited by Prof. Dr. Krukow, of Moscow.

Dr. Edmond Landolt has been elevated to the dignity of commander of the Order of the Crown by the German emperor.

Dr. George E. de Schweinitz has been appointed a member of the advisory board of physicians and surgeons for the eastern state penitentiary of Pennsylvania.

Professor Cirincione, of Sienna, has been called to the chair of clinical ophthalmology in Genoa, to fill the position made vacant by the death of Professor Secondi.

A news item from Binghamton, N. Y., says: General Edward F. Jones, formerly lieutenant governor, has made an offer, through the board of education of this city to aid any pupils in the public schools of Binghamton, whose eyes are affected and who need the attention of an oculist.

During the past few years General Jones has been losing his sight, until he is almost totally blind. His own misfortune has prompted him to do what he can to aid others who may be similarly afflicted, and he has become much interested in all work for the blind.

In the personal injury case of Vant Hul vs. the Great Northern Railway Company, where the party suing, a young man of eighteen years, lost the vision of one eye, and, according to the testimony, the other eye was impaired to the extent of about nine-tenths, with a strong probability that the sight would ultimately be entirely lost,

the Supreme Court of Minnesota holds that it could not be said that a verdict of \$14,400 was excessive.

The second volume of Dr. George M. Gould's "Biographic Clinics" is announced for very early publication. In the second volume of this series the origin of the ill-health of certain famous personages of former days is still further sought for. This time Wagner, Parkman, Mrs. Carlisle, Spencer, Whittier, Ossoli and Nietzsche are the subjects of Dr. Gould's researches, as were De Quincey, Carlisle, Darwin, Huxley and Browning in the first volume.

The report of the building committee of the Eye, Ear, Nose and Throat Hospital, of Pittsburg, Pa., of which Dr. J. A. Lippincott is chairman and Dr. W. F. Robeson is secretary, and Drs. Charles A. Wishart and G. E. Curry are members, is published in the seventh and eighth Annual Reports of the Hospital. This committee was appointed in October, 1901. It has secured by contributions over \$70,000, and as a result of their good work contracts have been made for a magnificent hospital building.

The thirtieth annual meeting of the Mississippi Valley Medical Association will be held at Cincinnati, Ohio, October 11, 12, 13, 1904. Dr. B. Merrill Ricketts has been elected chairman of the committee of arrangements.

The following are the officers of the Association elected at Memphis: President, Edwin Walker, M. D., Evansville, Ind.; president-elect, Hugh T. Patrick, M. D., Chicago, Ill.; first vice-president, Bransford Lewis, M. D., St. Louis, Mo.; second vice-president, Geo. W. Cale, Jr., M. D., Springfield, Mo.; secretary, Henry Enos Tuley, M. D., Louisville, Ky.; assistant secretary, S. C. Stanton, M. D., Chicago, Ill.; treasurer, Thos. Hunt Stucky, M. D., Louisville, Ky.

The following resolution was offered by Dr. S. P. Collins, of Hot Springs, Ark., at the Memphis meeting:

Whereas: The value of perfect sight and hearing is not fully appreciated by educators, and neglect of the delicate organs of vision and hearing often leads to disease of these structures; therefore be it

Resolved, That it is the sense of the Mississippi Valley Medical Association that measures be taken by boards of health, boards of edu-

cation and school authorities, and where possible, legislation secured, looking to the examination of the eyes of all school children, that disease in its incipency may be discovered and corrected.

"THE EYE AND NERVOUS SYSTEM; THEIR DIAGNOSTIC RELATIONS" is the title of a work soon to issue from the press of the J. B. Lippincott Co. The fact that it will be edited by Drs. Wm. G. Spiller and Wm. Campbell Posey, of Philadelphia, is a guarantee of its importance from both the neurological and ophthalmological standpoint. The work will consist of a single volume of about 800 pages of 500 words each, profusely illustrated.

The chapters in this much needed English addition to neurophthalmology will be written (as follows) by well known Ophthalmologists throughout the United States:

I. Dr. Wm. G. Spiller, Philadelphia. Embryology and Anatomy of the Brain. Origin and distribution of the cranial nerves, including the optic nerve, with especial reference to those with ocular connections.

II. Dr. W. Norman Suter, Washington, D. C. Sight. On the general structure of the eye and the formation of the retinal image. Anomalies of vision.

III. Dr. Charles K. Mills, Philadelphia. Psychology of the Visual Act. Psychology of word-seeing (word-blindness), mind-blindness, optic aphasia, and whatever else seems relative.

IV. Dr. Casey A. Wood, Chicago. General Examination of the Exterior of the Eye and the Region of the Eye; Perimetry; Color-Blindness; Peripheral Blindness and Subjective Visual Sensations, Amblyopia, etc.

V. Dr. Alexander Duane, New York. The Extra-Ocular Muscles. Part I.—General consideration of conditions attending binocular vision. Manner of testing extra-ocular muscle balance and imbalance. Part II.—Intracranial affections of extra-ocular muscles. General Symptoms: Headaches, vomiting, etc. Involvement of other cranial nerves; this does not include involvement of these nerves in the foramina or outside the skull, nor the type of ocular lesions which they occasion.

VI. Dr. John E. Weeks, New York. The Intra-Ocular Muscles. Short sketch, with diagram, of the anatomy and physiology of the pupil. Manner of testing the pupillary reflexes. Full consideration of the behavior of the pupil in health and disease.

VII. Dr. Edward Jackson, Denver, Colo. Peripheral Affections of the Fifth, Seventh, and Cervical Sympathetic Nerves; Ocular Lesions Caused by Them; Treatment.

VIII. Dr. H. V. Würdemann, Milwaukee, Wis. Diseases of the Retina and Optic Nerve. Ophthalmoscopy.

IX. Dr. Wm. G. Spiller, Philadelphia. Gross Diseases of the Brain. Tumors. Aneurysms. Abscess. Parasite. Apoplexy (hemorrhage, embolism and thrombosis). Encephalitis. Cerebral localization.

X. Dr. E. W. Taylor, Boston. Bulbar and Pseudo-bulbar Diseases. Bulbar palsy (including encephalitis sup.). Myasthenia gravis—ocular palsies—ptosis. Bulbar apoplexy. Pseudo-bulbar palsy. Embolism and thrombosis of the arteries of the bulb. Gerlier's disease.

XI. Dr. Wm. Hirsch, New York. Arteriosclerosis, Disseminated Sclerosis, and Allied Affections.

XII. Dr. F. X. Dercum, Philadelphia. Parasyphilitic Affections, Insanities, and Toxic Encephalopathies. Paretic dementia. Tabes. Insanities. Head encephalopathy.

XIII. Dr. B. Sachs, New York. Amaurotic Family Idiocy and Cerebral Palsy of Childhood.

XIV. Dr. C. W. Burr, Philadelphia. Gross Aberrations of Cephalic Development. Acromegaly. Congenital abnormalities of the skull. Hemifacial hypertrophy and atrophy.

XV. Dr. Pearce Baily, New York. Affections of the Spinal Cord and Spinal Nerves. Myelitis. Syringomyelia. Injuries of the spinal cord. Diseases of the nerves. Multiple neuritis. Landry's paralysis.

XVI. Dr. G. E. de Schweinitz, Philadelphia. Neurosis and Psychoses. Hysteria. Neurasthenia. Hypnosis and sleep. Hypochondria. Tests for simulated blindness. Treatment of hysteria, etc.

XVII. Dr. J. H. Lloyd, Philadelphia. Tetany and tetanus. Migraine: simple, ophthalmic, ophthalmoplegic (recurrent oculomotor palsy). Epilepsy, ocular auræ and the visual disturbances of. Transient cerebral blindness, monocular and binocular, uræmic, vascular. Transient monocular blindness due to spasm of central artery of the retina, as, for example, in Raynaud's disease.

XVIII. Dr. G. D. Risley, Philadelphia.

Part I. Neurosis and Other Conditions Occasioned by Errors of Refraction and Imbalance of the Extraocular Muscles, and the

Effect of Lenses and Operative Procedure in Relieving the Same. Headache. Neuralgia.

Dr. H. F. Hansell, Philadelphia.

Part II. Neurosis and Other Conditions Occasioned by Errors of Refraction and Imbalance of the Extra-Ocular Muscles, and the Effect of Lenses and Operative Procedure in Relieving the Same.

XIX. Dr. William Campbell Posey, Philadelphia. Graves' Disease. This includes treatment of Graves' disease in general and of exophthalmus in particular. The Effect of Operations upon the Eyes in Relieving Mental Diseases. Delirium after Operations upon the Eyes.

XX. Dr. Charles H. Frazier, Philadelphia. The Surgical Treatment of Intracranial Lesions Causing Disturbances of Vision. Under this will be included the surgery of the fifth and seventh nerves (anastomosis in facial palsy and facial tic), the surgery of the sinuses of the brain, trephining for preserving vision in cases of brain tumor, operation for tumor at the chiasm, the effect of puncture of the ventricles in hydrocephalus to relieve pressure on the chiasm, operation upon tumors of the occipital lobe, operation on tumors of the cerebellum to remove the early choked disks.

XXI. Dr. Joseph Sailer, Philadelphia. Tremors in general. Reflexes in general, excepting those concerned in vision. Gaits, and co-ordination of movement.

XXII. Dr. G. L. Walton, Boston. Degeneracy.

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GERSTS

